PRODUCT ASSESSMENT REPORT OF A BIOCIDAL PRODUCT FOR NATIONAL AUTHORISATION APPLICATIONS

JC-CTPI-3

Product type 8

Propiconazole, tebuconazole, IPBC and cypermethrin as included in the Union list of approved active substances

Case Number in R4BP: BC-CV017391-30

Evaluating Competent Authority: ES-eCA

Date: December 2021

Table of Contents

1 CONCLUSION

Regarding Physical-chemical properties
JC-CTPI-3 is a translucent and yellow liquid with a hydrocarbon odour. The density is 0.810 g/cm^3.

The product is stable after 54ºC during 14 days and after 8 weeks at 40ºC. Regarding storage at low temperature there is not degradation after 7 days at 0ºC. The study of storage stability at long time shows that the product is stable at room temperature.
JC-CTPI-3 has been shown to be non-corrosive to metals (steel and aluminium).

JC-CTPI-3 is not considered potentially explosive and nor oxidising properties.
This product has a flash point of 42,4ºC, so according to CLP Regulation it is categorized as flammable category 3. The auto-ignition temperature of all components in the product is higher than 200 °C so the auto-ignition temperature for the product will be higher than 200ºC.

Regarding analytical methods, all acceptance criteria were satisfied: the applied method fit the requirements of the validation for the quantitative analysis of each active substance in the test item.

Conclusion on efficacy assessment:
The tests submitted show that it is preventive efficacy against insects (including termites *Reticulitermes* spp) and fungi (including *Coriolus versicolor*) by penetrating process for softwoods and hardwoods and preventive efficacy against insects (including termites, *Reticulitermes spp*) and fungi (including *Coriolus versicolor*) by superficial treatment for softwoods. Use class 1-3.
The product has also demonstrated its curative efficacy against insects (including termites) by supeficial and injection treatments for softwoods.

Regarding Exposure assessment and Risk characterisation:
After evaluating the exposure and characterizing the risk to human health of the JC-CTPI-3 product according to the pattern of use requested by the applicant, the conclusions for each scanario are:

Summary table: scenarios		
Scenario number	**Scenario and Users (e.g. mixing/ loading)**	**Conclusion**
1.	Vacuum-pressure (preventive) Industrial user	A **safe** situation has been identified for the industrial vacuum-pressure application of the product when PPEs (new gloves each work shift, impermeable coverall and P3 mask) are worn, therefore **the uses of which this scenario is part will be authorized.**
2.	Automated dipping process (preventive)	(1) Automated dipping process: An **unsafe** situation has been identified for industrial

	Industrial user	automated dipping application of the product even when using PPE, therefore **the uses of which this scenario is part will not be authorized.** (2) Fully automated dipping process: A **safe** situation has been identified for industrial automated dipping application in Tier 3, when dipping is a **fully automated dipping process** and gloves and impermeable coverall are worn.
3.	Automated spray application (preventive) Industrial user	A **safe** situation has been identified for industrial automated spraying application of product when new gloves each work shift, impermeable coverall and P3 mask are worn**.**
4.	Spray application (preventive and curative) Trained-Professional	An **unsafe** situation has been identified for trained-professional automated spaying application of product even when using PPE, therefore **the uses of which this scenario is part will not be authorized.**
5.	Brushing (preventive and curative) Trained-professional	A **safe** situation has been identified for trained professional brushing application of product when gloves and coverall are worn.
6.	Injection (preventive and curative) Trained-Professional	An **unsafe** situation has been identified for trained-professional injection application of product even when using PPE, therefore **the uses of which this scenario is part will not be authorized.**
7.	Mixing and Loading Trained-professional	A **safe** situation has been identified for trained professional mixing and loading of product.
8.	Cleaning of brush equipment Trained-professional	A **safe** situation has been identified for trained professional cleaning brushes when **gloves** are worn.
9.	Cutting and sanding Professional	A **safe** situation has been identified for professional cutting and sanding treated wood.
10.	Cutting and sanding Non-professional	A **safe** situation has been identified for non-professional cutting and sanding treated wood.
11.	Chewing wood off-cut General public	A **safe** situation has been identified for toddler chewing treated wood chips.
12.	Playing on weathered structure and mouthing General public	A **safe** situation has been identified for toddler playing and mouthing on playground weathered wood structure outdoors preventively and curatively treated with the product. when the following risk mitigation measure is implemented: *"The product is not for treatment of timber for playground structures, floors or any other surface*

		where children are expected to have direct and continuous contact."
13.	Inhalation residues indoors General public	A **safe** situation has been identified for general public inhaling volatilised residues indoors.
14.	Laundering contaminated work clothing at home General public	A **safe** situation has been identified for general public inhaling volatilised residues indoors.
Combined scenarios. (5) + (7) + (8) + (14)	Trained professionals Brushing / M&L /Washing brushes / Laundering work clothes	A **safe** situation has been identified for trained professional mixing and loading, brushing, washing brushes and laundering work clothes when gloves and coveralls for brushing and gloves for washing brushes are worn.

Conclusion on environmental risk assessment

For preventive and curative treatment of wood classes 1 and 2, emissions are considered negligible. The risks for the application phase and service life are therefore acceptable for treatment of wood in classes 1 and 2.

For an outdoor application phase for wood in class 3, risks are acceptable only if emissions to the aquatic and terrestrial compartments are prevented whatever the type of treatment. Therefore, the product should not be applied above or near of surface water and the ground has to be covered with an appropriate plastic sheet to prevent any emission to the terrestrial compartment during in situ brushing, spraying and injectioning.
For the service-life phase of treated wood (class 3), risks can be considered acceptable for all the compartments whatever the type of treatment with the use of appropriate risk mitigation measures and the use of a topcoat.

However, the risk for the terrestrial compartment after application by spraying is considered unacceptable. Even if the soil is covered during application with a plastic sheet, this RMM only prevent all direct releases to soil via run off but the releases to soil via drift can not be depreciated. Therefore, the product cannot be authorized for wood in UC3 by "in situ" spray application.

2 ASSESSMENT REPORT

2.1 Summary of the product assessment

2.1.1 Administrative information

2.1.1.1 Identifier of the product

Identifier	**Country (if relevant)**
JC-CTPI-3	SPAIN

2.1.1.2 Authorisation holder

Name and address of the authorisation holder	**Name**	QUIMICA DE MUNGUIA S.A.
	Address	Derio Bidea 51 48100 Munguía (Vizcaya) Spain
Authorisation number	ES/APP(NA)-2021-08-00789	
Date of the authorisation	20/12/2021	
Expiry date of the authorisation	31/05/2025	

2.1.1.3 Manufacturer of the product

Name of manufacturer	QUIMICA DE MUNGUIA S.A.
Address of manufacturer	Derio Bidea 51 48100 Munguía (Vizcaya) España
Location of manufacturing sites	48100 Munguía (Vizcaya) España

2.1.1.4 Manufacturer of the actives substances

Active substance	**Cypermethrin**
Name of manufacturer	ARYSTA LifeScience Benelux
Address of manufacturer	Rue de Renory 26/1 – 4102 Ougrée - Belgium
Location of manufacturing sites	1. Gharda Chemical Limited D, 1/2/ MIDC Lote Parshuram Tal. Khed Dist. Ratnagiri, 415 722, Maharashtra, India. 2. Mitchell Cotts Chemicals Ltd ("MCC", a division of Haltermann Ltd, a subsidiary of DOW Chemicals) Steanard Lane, Mirfield, West Yorkshire, WF14 8HZ, Uinted Kingdom.

Active substance	**Propiconazole**
Name of manufacturer	LANXESS Deutschland GmbH

Address of manufacturer	Kennedyplatz 1 50569 Köln Germany
Location of manufacturing sites	1. Syngenta Crop Protection AG CH-1870 Monthey 2. Jiangsu Yangnong Chemical Group Co., Ltd Plant location - Wenfeng Road, Yangzhou, Jiangsu 225009, P.R. China 3. Jiangsu SevenContinent Green Chemical Co., Ltd Plant location: North Area of Dongsha Chem-Zone, Zhanjiagang, Jiangsu, 215600, P.R. China

Active substance	**Tebuconazole**
Name of manufacturer	LANXESS Deutschland GmbH
Address of manufacturer	Kennedyplatz 1 50569 Köln Germany
Location of manufacturing sites	Bayer CropScience Corp. P.O. Box 4913 Hawthrorn Road, Kansas City MO 64120-001 USA

Active substance	**3-iodo-2-propynyl carbamate (IPBC)**
Name of manufacturer	LANXESS Deutschland GmbH
Address of manufacturer	Kennedyplatz 1 50569 Köln Germany
Location of manufacturing sites	Shanghai Hui Long Chemicals Co., Ltd. ZIP: 201815, Dengta Jiazhu R. Jiading/ District Shanghai, People Republic of China

2.1.2 Product composition and formulation

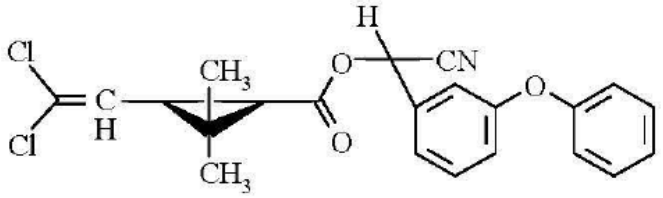
NB: the full composition of the product according to Annex III Title 1 should be provided in the confidential annex.

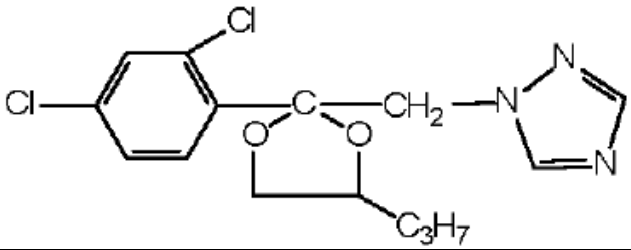
Does the product have the same identity and composition as the product evaluated in connection with the approval for listing of the active substance(s) on the Union list of approved active substances under Regulation No. 528/2012?

Yes ☐
No ☒

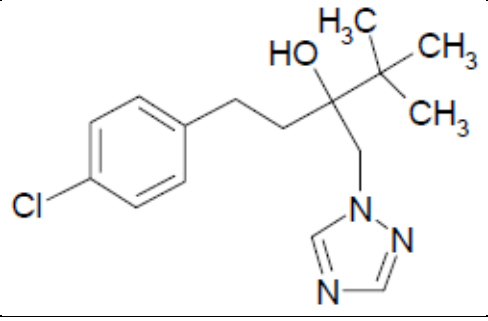
2.1.2.1 Identity of the active substance

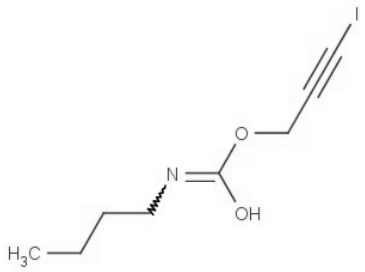
The biocidal product has four active substances.

Main constituent	
ISO name	Cypermethrin cis/trans; 40/60
IUPAC or EC name	(RS)-α-cyano-3phenoxybenzyl-(1RS)- cis,trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate
EC number	257-842-9
CAS number	52315-07-8, 67375-30-8
Index number in Annex VI of CLP	607-422-00-X
Minimum purity / content	920 g/kg
Structural formula	

Main constituent	
ISO name	Propiconazole
IUPAC or EC name	1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole
EC number	262-104-4
CAS number	60207-90-1
Index number in Annex VI of CLP	613-205-00-0
Minimum purity / content	930 g/kg
Structural formula	

Main constituent	
ISO name	Tebuconazole

IUPAC or EC name	1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol
EC number	403-640-2
CAS number	107534-96-3
Index number in Annex VI of CLP	603-197-00-7
Minimum purity / content	950 g/kg
Structural formula	

Main constituent	
ISO name	IPBC
IUPAC or EC name	3-iodo-2-propynyl butylcarbamate
EC number	259-627-5
CAS number	55406-53-6
Index number in Annex VI of CLP	616-212-00-7
Minimum purity / content	980 g/kg
Structural formula	

2.1.2.2 Candidate for substitution

IPBC, cypermethrin and propiconazole are not PBT candidates.
Annex I Assessment Report for tebuconazole, PT8 states that tebuconazole is considered to be very persistent (vP) and toxic (T) but not bioaccumulative. In conclusion, tebuconazole shall be considered a candidate for substitution using the criteria in Article 10(1).
Under Article 23(1) of Regulation 528/2012 Member States are required to perform a comparative assessment for biocidal products containing an active substance that is a candidate for substitution in accordance with Article 10(1). Please report to the relevant section (2.2.9).

2.1.2.3 Qualitative and quantitative information on the composition of the biocidal product

Common name	IUPAC name	Function	CAS number	EC number	Content (%)
Cypermethrin	(RS)-α-cyano-3phenoxybenzyl-(1RS)- cis,trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate	Active Substance	52315-07-8	257-842-9	0.175
Propiconazole	1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole	Active Substance	60207-90-1	262-104-4	0.3
Tebuconazole	1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol	Active Substance	107534-96-3	403-640-2	0.3
IPBC	3-iodo-2-propynyl butylcarbamate	Active Substance	55406-53-6	259-627-5	0.3
Butyldiglycol	2-(2-butoxyethoxy)ethanol	no-active substance	112-34-5	203-961-6	10
Kerosine	-	no-active substance	64742-81-0	265-184-9	76.125
-	-	no-active substances	-	-	-

2.1.2.4 Information on technical equivalence

The sources of active substances Cypermethrin, Tebuconazole and Propiconazole (Location 1): The manufacturer of the active substance and the manufacturing site of the active substance used in the biocidal product are identical to the manufacturer of the active substance and the production site of the active substance included in Annex I of Directive 98/8/EC. Therefore no check for equivalence is necessary.

Propiconazole (Location 2) source: The source of propiconazole manufactured by LANXESS Deutschland GmbH (Jiangsu Yangnong Chemical Group Co., Ltd) is considered to be technically equivalent to the reference source (Technical equivalence evaluated by Finland, decision number: Dnro 717/713/2011)

Propiconazole (Location 3) source: The source of propiconazole manufactured by LANXESS Deutschland GmbH (Jiangsu SevenContinent Green Chemical Co., Ltd) is considered to be technically equivalent to the reference source (Technical equivalence decision number TAP-D-1182636-27-00/F (Asset number: EU-0013032-0000) dated February 2016.

IPBC source: The source of IPBC manufactured by LANXESS Deutschland GmbH (Shanghai Hui Long Chemicals Co., Ltd.) is considered to be technically equivalent to the reference source (Technical equivalence decision number TAP-D-1182636-27-00/F (Asset number: EU-0017138-0000) dated June 2017.

2.1.2.5 Information on the substances of concern.

Two substances of the biocidal product have been considered as substances of concern (SoC) because they contribute to the classification of the product: Butyldiglycol and Kerosine.

Please see the confidential annex for further details.

2.1.2.6 Type of formulation

Liquid ready to use

2.1.3 Hazard and precautionary statements

Classification and labelling of the products of the family according to the Regulation (EC) 1272/2008

Classification	
Hazard category	Flam. Liquid. 3 Asp. Tox. 1 Skin Irrit. 2 Eye Irrit. 2 STOT-RE 3 Repr. Cat. 1B Aquatic Acute cat- 1 Aquatic Chronic cat 1.
Hazard statement	H226 Flammable liquid and vapour H304 May be fatal if swallowed and enters airways H315 Causes skin irritation H319 Causes serious eye irritation H336 May cause drowsiness or dizziness H360D May damage the unborn child H400:Very toxic to aquatic life. H410: Very toxic to aquatic life with long lastin effects. EUH208: Contains propiconazole and IPBC. May produce an allergic reaction
Labelling	

Signal words	Danger  GHS02  GHS08  GHS07  GHS09
Hazard statements	H226 Flammable liquid and vapour H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H360D May damage the unborn child H410: Very toxic to aquatic life with long lasting effects. EUH208: Contains propiconazole and IPBC. May produce an allergic reaction
Precautionary statements	P202 Do not handle until all safety precautions have been read and understood P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking P233 Keep container tightly closed P240 Ground and bond container and receiving equipment P241 Use explosion-proof [electrical/ventilating/lighting/…] equipment P243 Take action to prevent static discharges P261 Avoid breathing dust/fume/gas/mist/vapours/spray P264 Wash … thoroughly after handling. P271 Use only outdoors or in well-ventilated area. P273: avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P362+P364 Take off contaminated clothing and wash it before reuse. P391: collect spillage. P403 + P235 Store in a well ventilated place. Keep cool. P405 Store locked up P501: dipose of contents/container as hazardous waste to a registered establishment or undertaking, in accordance with current regaulations.

Note	

2.1.4 Authorised uses

2.1.4.1 Use description 1

Table 1. use # 1 – Pressure process- Preventive treatment - Industrial (Trained professional) users.

Product Type	PT8
Where relevant, an exact description of the authorised use	JC-CTPI-3 is a wood preservative product with insecticidal and fungicidal properties against fungi species (i.e. *basidiomyectes*) wood boring beetles and termites (*Reticulitermes spp*.).
Target organism (including development stage)	Wood boring beetles (shown on *Hylotrupes bajulus)* Larvae. Termites *Reticulitermes spp* (*Reticulitermes grassei*). No data. Wood rotting fungi: - Brown rot fungi - White rot fungi
Field of use	Class of use 1: situation im which the wood or woods based product is inside a construction, not exposed to the weather and wetting. Class of use 2: situation im which the wood or woods based product is under cover and not exposed ti the weather (particulary rain and driven rain) but where occasional but not persistent, wetting can occur. Class of use 3:Situation in which the wood or wood-based product is above ground and exposed to the weather (particularly rain).
Application method	Application by impregnation. Closed system: vacuum-pressure. The treatment is carried out in vessels or autoclaves which may be cilindrical or rectangular in cross-section and designed to be capable of safe operation.
Application rates and frequency	Retention dose: 35 kg product/m^3 treated wood. Term of security: 12 hours.
Category of use	Industrial (Trained professional).
Pack sizes and packaging material	HDPE containers of 200, 500 and 1000 litres.

2.1.4.1.1 Use-specific instructions for use

The treatment is carried out in vessels or autoclaves which may be cylindrical or rectangular in cross-section and designed to be capable of safe operation. Generally, the following stages are involved:

1. The untreated wood is loaded onto bogies that are moved into the treatment vessel using mechanical means such a winch or forklift truck.
2. The vessel door is closed and the door seal provides a liquid and air-tight seal. A vacuum is applied to remove most of the air from the cylinder and the air contended in the wood cells.
3. The product is pumped into the cylinder and the pressure is raised. The total

treating time and cycles may vary, depending on the species of wood, but in all instances the treating process remains a closed system.

4. A final vacuum is applied to remove the excess of preservative product that would otherwise drip from the wood into the vessel.

5. The final step in the process are the unloading of the wood from the treatment vessel.

Wear new gloves each work shift, impermeable coverall and P3 mask.

It must not be mixed with other chemical products.

Product can be used to treat hard and soft wood.

Due to the countless types of finishes that exist today, before using the product, perform a compatibility test with the surface to be treated.

It cannot be applied to wood intended to be in contact with food.

It is recommended to apply a finishing product once a year.

2.1.4.1.2 Use-specific risk mitigation measures

Wear protective chemical resistant new gloves each work-shift (glove material to be specified by the authorisation holder within the product information).

Use of respiratory protective equipment (RPE) providing a protection factor of 40 is mandatory. At least a full face mask with particle filter P3 is required (filter type (code letter, colour) to be specified by the authorisation holder within the product information).

A protective coverall which is impermeable for the biocidal product shall be worn (coverall material to be specified by the authorisation holder within the product information).

Prevent any release to the environment during the product application phase as well as during the storage and the transport of treated timber;

During the application phase, prevent any release of cleaning water (after cleaning of floors, tanks, containers) to the environment (sewer, soil, water);

All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump).

Freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing, or both, to prevent direct losses to soil, sewer or water, and that any losses of the product shall be collected for reuse or disposal. Before use, store the timber in an area sheltered from the weather;

Any contaminated water/soil shall be collected, contained and treated as hazardous waste.

2.1.4.1.3 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment.

See section 2.1.5.3.

2.1.4.1.4 Where specific to the use, the instructions for safe disposal of the product and its packaging

Empty containers, unused product, washing water, containers and other waste generated during the treatment are considered hazardous waste. Deliver those wastes to a registered establishment or undertaking, in accordance with current regulations. Code the waste according to Decision 2014/955 / EU. Do not release to soil, ground, surface water or any kind of sewer.

2.1.4.1.5 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

See section 2.1.5.5.

2.1.4.2 Use description 2.

Table 2. use # 2 – Superficial application-fully automated dipping Preventive treatment-Industrial (Trained professional) users.

Product Type	PT8
Where relevant, an exact description of the authorised use	JC-CTPI-3 is a wood preservative product with insecticidal and fungicidal properties against fungi species (i.e. *basidiomyectes*) wood boring beetles and termites (*Reticulitermes spp*.).
Target organism (including development stage)	Wood boring beetles (shown on *Hylotrupes bajulus)* Larvae. Termites *Reticulitermes spp* (*Reticulitermes grassei*). No data. Wood rotting fungi: - Brown rot fungi - White rot fungi
Field of use	Class of use 1: situation im which the wood or woods based product is inside a construction, not exposed to the weather and wetting. Class of use 2: situation im which the wood or woods based product is under cover and not exposed ti the weather (particulary rain and driven rain) but where occasional but not persistent, wetting can occur. Class of use 3: Situation in which the wood or wood-based product is above ground and exposed to the weather (particularly rain).
Application method	Surface application method: Closed system: fully automated dipping.
Application rates and frequency	Retention dose: 200 g product/m^2 treated wood. Term of security: 12 hours.
Category of use	Industrial (Trained professional) user.
Pack sizes and packaging material.	HDPE containers of 200, 500 and 1000 litres.

2.1.4.2.1 Use-specific instructions for use

Product can be used to treat hard and soft wood.

Fully automated dipping application:

Product JC-CTPI-3 must only be used in fully automated dipping processes where all steps in the treatment and drying process are mechanised and no manual handling takes place, including when the treated articles are transported through the dip tank to draining/drying and storage (if not already surface dry before moving to storage). Where appropriate, the wooden articles to be treated must be fully secured (e.g. via tension belts or clamping devices) prior to treatment and during the dipping process, and must not be manually handled until after the treated articles are surface dry.'

The treatment apparatus is typically established in a contained or bunded area fabricated from materials resistant to the wood preservative product.

Wear gloves and impermeable coverall.

It must not be mixed with other chemical products.

Due to the countless types of finishes that exist today, before using the product, perform a compatibility test with the surface to be treated.

It can not be applied to wood intended to be in contact with food.

The newly treated wood has to be stored, after industrial treatment, under cover or on a hard and impermeable surface or both ways to avoid direct losses to the soil or water.

2.1.4.2.2 Use-specific risk mitigation measures

Wear protective chemical resistant gloves (glove material to be specified by the authorisation holder within the product information).

A protective coverall which is impermeable for the biocidal product shall be worn (coverall material to be specified by the authorisation holder within the product information).

Prevent any release to the environment during the product application phase as well as during the storage and the transport of treated timber;

During the application phase, prevent any release of cleaning water (after cleaning of floors, tanks, containers) to the environment (sewer, soil, water);

All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump).

Freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing, or both, to prevent direct losses to soil, sewer or water, and that any losses of the product shall be collected for reuse or disposal. Before use, store the timber in an area sheltered from the weather;

Any contaminated water/soil shall be collected, contained and treated as hazardous waste.

2.1.4.2.3 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

See section 2.1.5.3.

2.1.4.2.4 Where specific to the use, the instructions for safe disposal of the product and its packaging

Empty containers, unused product, washing water, containers and other waste generated during the treatment are considered hazardous waste. Deliver those wastes to a registered establishment or undertaking, in accordance with current regulations. Code the waste according to Decision 2014/955 / EU. Do not release to soil, ground, surface water or any kind of sewer.

2.1.4.2.5 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

See section 2.1.5.5.

2.1.4.3 Use description 3.

Table 3. use # 3 – Superficial Application- Automated spraying- Preventive treatment-Industrial (Trained professional) users.

Product Type	PT8
Where relevant, an exact description of the authorised use	JC-CTPI-3 is a wood preservative product with insecticidal and fungicidal properties against fungi species (i.e. *basidiomyectes*) wood boring beetles and termites (*Reticulitermes spp*.).
Target organism (including development stage)	Wood boring beetles (shown on *Hylotrupes bajulus)* Larvae. Termites *Reticulitermes spp* (*Reticulitermes grassei*). No data. Wood rotting fungi: - Brown rot fungi - White rot fungi
Field of use	Class of use 1: situation im which the wood or woods based product is inside a construction, not exposed to the weather and wetting. Class of use 2: situation im which the wood or woods based product is under cover and not exposed ti the weather (particulary rain and driven rain) but where occasional but not persistent, wetting can occur. Class of use 3: Situation in which the wood or wood-based product is above ground and exposed to the weather (particularly rain).
Application method	Surface application method: Closed system: automated spraying.
Application rates and frequency	Retention dose: 200 g product/m^2 treated wood. Term of security: 12 hours.
Category of use	Industrial (Trained professional) user.
Pack sizes and packaging material.	HDPE containers of 200, 500 and 1000 litres.

2.1.4.3.1 Use-specific instructions for use

Wear new gloves each work shift, impermeable coverall and P3 mask.

It must not be mixed with other chemical products.

Product can be used to treat hard and soft wood.

Due to the countless types of finishes that exist today, before using the product, perform a compatibility test with the surface to be treated.

It cannot be applied to wood intended to be in contact with food.

It is recommended to apply a finishing product once a year. A non-biocidal top coat must be applied on treated wood used outdoor, above ground to avoid leaching of active substances.

2.1.4.3.2 Use-specific risk mitigation measures

Wear protective chemical resistant new gloves each work-shift (glove material to be specified by the authorisation holder within the product information).

Use of respiratory protective equipment (RPE) providing a protection factor of 40 is mandatory. At least a full face mask with particle filter P3 is required (filter type (code letter, colour) to be specified by the authorisation holder within the product information).

A protective coverall which is impermeable for the biocidal product shall be worn (coverall material to be specified by the authorisation holder within the product information).

Prevent any release to the environment during the product application phase as well as during the storage and the transport of treated timber;

During the application phase, prevent any release of cleaning water (after cleaning of floors, tanks, containers) to the environment (sewer, soil, water);

All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump).

Freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing, or both, to prevent direct losses to soil, sewer or water, and that any losses of the product shall be collected for reuse or disposal. Before use, store the timber in an area sheltered from the weather;

Any contaminated water/soil shall be collected, contained and treated as hazardous waste.

2.1.4.3.3 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

See section 2.1.5.3.

2.1.4.3.4 Where specific to the use, the instructions for safe disposal of the product and its packaging

Empty containers, unused product, washing water, containers and other waste generated during the treatment are considered hazardous waste. Deliver those wastes

to a registered establishment or undertaking, in accordance with current regulations. Code the waste according to Decision 2014/955 / EU. Do not release to soil, ground, surface water or any kind of sewer.

2.1.4.3.5 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

See section 2.1.5.5.

2.1.4.4 Use description 4.

Table 4. use # 4 – Preventive treatment by brushing surface application method- Trained professional users.

Product Type	PT8
Where relevant, an exact description of the authorised use	JC-CTPI-3 is a wood preservative product with insecticidal and fungicidal properties againts fungi species (i.e. *basidiomyectes*) wood boring beetles and termites (*Reticulitermes spp*.).
Target organism (including development stage)	Wood boring beetles (shown on *Hylotrupes bajulus)* Larvae. Termites *Reticulitermes spp* (*Reticulitermes grassei*). No data. Wood rotting fungi: - Brown rot fungi - White rot fungi
Field of use	Class of use 1: situation im which the wood or woods based product is inside a construction, not exposed to the weather and wetting. Class of use 2: situation im which the wood or woods based product is under cover and not exposed ti the weather (particulary rain and driven rain) but where occasiaonl but not persistent, wetting can occur. Class of use 3: Situation in which the wood or wood-based product is above ground and exposed to the weather (particularly rain). Indoors Outdoors
Application method	Surface application method: Brush application:
Application rates and frequency	Dose rate: 200 g product/m^2 treated wood. Term of security: 12 hours.
Category of use	Trained professional user.
Pack sizes and packaging material.	20, 25, 50, 100, 200 l. (HDPE) / 20 - 25 l in metal containers with plastic inner coating.

2.1.4.4.1 Use-specific instructions for use

Wear gloves and coated coverall.

2.1.4.4.2 Use-specific risk mitigation measures

Wear protective chemical resistant new gloves each work-shift (glove material to be specified by the authorisation holder within the product information). Industrial facilities of application and storage must not be realized any emission of waste product to sewage system. Do not apply where the product can reach surface water during outdoor application. For the outdoor treatment, cover the ground with an appropriate plastic sheet to prevent any emission to the terrestrial compartment. Freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing, or both, to prevent direct losses to soil, sewer or water, and that any losses of the product shall be collected for reuse or disposal. Before use, store the timber in an area sheltered from the weather; Any contaminated water/soil shall be collected, contained and treated as hazardous waste.

2.1.4.4.3 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

See section 2.1.5.3.

2.1.4.4.4 Where specific to the use, the instructions for safe disposal of the product and its packaging

Empty containers, unused product, washing water, containers and other waste generated during the treatment are considered hazardous waste. Deliver those wastes to a registered establishment or undertaking, in accordance with current regulations. Code the waste according to Decision 2014/955 / EU. Do not release to soil, ground, surface water or any kind of sewer.

2.1.4.4.5 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

See section 2.1.5.5.

2.1.4.5 Use description 5.

Table 5. use # 5 –Superficial application- Curative treatment - Trained professional users.

Product Type	PT8
Where relevant, an exact description of the authorised use	JC-CTPI-3 is a wood preservative product with insecticidal properties againts wood boring beetles and termites (*Reticulitermes spp*.).
Target organism (including development	Wood boring beetles (*Hylotrupes bajulus, Anobium puctatum*

stage)	*and Lyctus bruneus)* Larvae. Termites *Reticulitermes spp* (*Reticulitermes grassei*). No data.
Field of use	Indoors
Application method	Surface application method: Brush application.
Application rates and frequency	Dose rate: 300ml/m^2 treated wood. Term of security: 12 hours.
Category of use	Trained professional user.
Pack sizes and packaging material.	20, 25, 50, 100, 200 l. (HDPE) / 20 - 25 l in metal containers with plastic inner coating.

2.1.4.5.1 Use-specific instructions for use

Wear gloves and coated coverall.

2.1.4.5.2 Use-specific risk mitigation measures

Wear protective chemical resistant new gloves each work-shift (glove material to be specified by the authorisation holder within the product information).

Do not apply where the product can reach surface water during outdoor application.
For the outdoor treatment, cover the ground with an appropriate plastic sheet to prevent any emission to the terrestrial compartment.
Freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing, or both, to prevent direct losses to soil, sewer or water, and that any losses of the product shall be collected for reuse or disposal. Before use, store the timber in an area sheltered from the weather;
Any contaminated water/soil shall be collected, contained and treated as hazardous waste.
Industrial facilities of application and storage must not be realized any emission of waste product to sewage system.

2.1.4.5.3 Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

See section 2.1.5.3.

2.1.4.5.4 Where specific to the use, the instructions for safe disposal of the product and its packaging

Empty containers, unused product, washing water, containers and other waste generated during the treatment are considered hazardous waste. Deliver those wastes to a registered establishment or undertaking, in accordance with current regulations.

Code the waste according to Decision 2014/955 / EU.
Do not release to soil, ground, surface water or any kind of sewer.

2.1.4.5.5 Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage

See section 2.1.5.5.

2.1.5 General directions for use

2.1.5.1 Instructions for use

Read attached instructions before use. The labelling of the product shall be including the sentence: Use biocides safely. Always read the label and product information before use. Aerate adequately the place where the product is applied.

2.1.5.2 Risk mitigation measures

Impregnated wood must not be in contact with food or feedstuffs. The product is not for treatment of timber for playground structures, floors or any other surface where children are expected to have direct and continuous contact. Do not use on wood which may come in direct contact with food feeding stuff and livestock animals. A non-biocidal top coat must be applied on treated wood used outdoor, above ground to avoid leaching of active substances. To avoid unacceptable risk for the aquatic and sediment organisms, the biocidal product may only be applied to wood, which will not be used above or close to surface waters.

2.1.5.3 Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment

IF INHALED: Move to fresh air and keep at rest in a position comfortable for breathing. If symptoms: Call 112/ambulance for medical assistance. If no symptoms: Call a POISON CENTRE or a doctor. IF SWALLOWED: Rinse mouth. Give something to drink, if exposed person is able to swallow. Do NOT induce vomiting. Call a POISON CENTRE or a doctor. IF ON SKIN: Take off all contaminated clothing and wash it before reuse. Wash skin with water. If skin irritation occurs: Get medical advice. IF IN EYES: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing for 5 minutes. Call a POISON CENTRE or a doctor.

2.1.5.4 Instructions for safe disposal of the product and its packaging

See specific sections 2.1.4.1.4., 2.1.2.4., 2.1.4.3.4., 2.1.4.4.4. and 2.1.4.5.4.

2.1.5.5 Conditions of storage and shelf-life of the product under normal conditions of storage.

Shelf-life: 2 years

2.1.6 Other information

Definitions: Industrial (trained professional) users: industrial factory workers, havimg received specific training in management biocidal products according to the national legislation in force. Trained professional users (TP):pest control operators, having received specific training in management of biocidal products according to the national legislation in force.

2.1.7 Packaging of the biocidal product

Type of packaging	Size/volume of the packaging	Material of the packaging	Type and material of closure(s)	Intended user (e.g. professional, non-professional)	Compatibility of the product with the proposed packaging materials (Yes/No)
Can/tin	200, 500, and 1000 L	HDPE	-	Industrial	Yes
Can/tin	20, 25, 50, 100 and 200 L	HDPE	-	Trained professional	Yes
Metal containers with plastic inner coating	20 and 25 L	HDPE	-	Trained professional	Yes

2.1.8 Documentation

2.1.8.1 Data submitted in relation to product application

No new information was submitted of the biocidal product.

2.1.8.2 Access to documentation

The applicant has submitted four letter of access to the dossier of the active substances:
-Cypermethrin: a letter of access from Agriphar group (now Arysta LifeScience Benlux).
-Tebuconazole: a letter of access from LANXESS Deutschland GmbH.
-IPBC: a letter of access from LANXESS Deutschland GmbH.
-Propiconazole: a letter of access from LANXESS Deutschland GmbH.

All efficacy tests provided have been performed with JC-CTPI-3 and belong to QUIMICA DE MUNGUIA, so no letter of access is required to use this tests.

2.2 Assessment of the biocidal product

2.2.1 Intended uses as applied for by the applicant

Table 1. Intended use # 1 – Wood preservative – fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp – industrial /trained professional user – automated spraying and dipping (superficial application)– indoor use

Product Type	PT8
Where relevant, an exact description of the authorised use	
Target organism (including development stage)	fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp
Field of use	Class of use 1-3.
Application methods	automated spraying and dipping (superficial application)
Application rates and frequency	1 annual application using 206 grams of product per m2 of wood
Categories of users	Industrial /trained professional user
Pack sizes and packaging material	HDPE containers of 200, 500 and 1000 litres for industrial user. HDPE containers of 20, 25, 50, 100 and 200 litres for trained professional user Metal containers from 20 until 25 litres for trained professional user

Table 2. Intended use # 2 – Wood preservative – fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp – industrial user / trained professional user – double vacuum (penetrating application) – indoor use

Product Type(s)	PT8
Where relevant, an exact description of the authorised use	
Target organism (including development stage)	fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp
Field of use	CU3
Application method	double vacuum (penetrating application)
Application rates and frequency	1 annual application using 35 kg of product per m3 of wood

Categories of users	Industrial / trained professional user
Pack sizes and packaging material	HDPE containers of 200, 500 and 1000 litres for industrial user. HDPE containers of 20, 25, 50, 100 and 200 litres for trained professional user Metal containers from 20 until 25 litres for trained professional user

Table 3. Intended use # 3 – Wood preservative – fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp – professional user – spraying and brushing application (superficial application) – indoor and outdoor use

Product Type	PT8
Where relevant, an exact description of the authorised use	
Target organism (including development stage)	fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp
Field of use	CU3
Application methods	spraying and brushing application (superficial application)
Application rates and frequency	Curative application: 300 ml of product per m2 of wood. Preventive application: 206 grams of product per m2 of wood
Categories of users	Professional user
Pack sizes and packaging material	Metal containers of 0.75 ml and from 1 until 5 litres.

Table 4. Intended use # 4 – Wood preservative – fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp – non professional user (general public) – spraying and brushing application (superficial application) – indoor and outdoor use

Product Type(s)	PT8
Where relevant, an exact description of the authorised use	
Target organism (including development stage)	fungi species (i.e.; basidiomycetes), woodworm and termites of the genere of Reticulitermes spp
Field of use	CU3

Application method(s)	spraying and brushing application (superficial application)
Application rate(s) and frequency	Curative application: 300 ml of product per m2 of wood. Preventive application: 206 grams of product per m2 of wood
Category(ies) of user(s)	Non professional user (general public)
Pack sizes and packaging material	Metal containers of 0.75 ml and from 1 until 5 litres.

2.2.2 Physical, chemical and technical properties

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
Physical state at 20 °C and 101.3 kPa	Visual method	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Very fluid liquid.	Legay S. (2015)
Colour at 20 °C and 101.3 kPa	Visual method	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Translucent and yellow liquid.	Legay S. (2015)
Odour at 20 °C and 101.3 kPa	Visual method	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Hydrocarbon odour	Legay S. (2015)
Acidity / alkalinity	The water solubility of the product does not reach the minimum required for testing of acidity and alkalinity. Therefore, it is not technically possible to be performed.	-	-	-

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
Relative density / bulk density	OECD 109	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Specific gravity: 810 kg/m^3 at 20ºC	Legay S. (2012)
Storage stability test – **accelerated storage (8 weeks at 40ºC)**	CIPAC MT 46.3	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Chemical stability: Cypermethrin: 0.177 %w/w Tebuconazole: 0.33 %w/w IPBC: 0.32 %w/w Propiconazole: 0.30%w/w Physical stability: No deposit No phase partition No appearance change	Legay S. (2012)
Storage stability test – **accelerated storage (14 days at 54ºC)**	CIPAC MT 46.3	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Packaging: Inert and closed packaging (glass flask,PTFE cap). Chemical stability: Cypermethrin: 0.184 %w/w Tebuconazole: 0.31 %w/w IPBC: 0.31 %w/w Propiconazole: 0.31%w/w Physical stability: No deposit No phase partition No appearance change Viscosity: < 5	Legay S. (2012)

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
			mPa.s at 20ºC (indicative value: 1.92 mPa.s)	
Storage stability test – **long term storage at ambient temperature**	Technical Monograph no.17 (2nd Edition)	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	<u>Packaging: Commercial packaging</u> <u>After 24 months at 20ºC:</u> <u>Chemical stability:</u> Cypermethrin: 0.190 %w/w Tebuconazole: 0.291 %w/w IPBC: 0.316 %w/w Propiconazole: 0.301%w/w <u>Physical stability:</u> No deposit No phase partition No surface skin No visual impurities No foreign ingredients <u>Commercial packaging:</u> No signs of corrosion or degradation Weight change: 0.07 % (loss) Viscosity: < 5 mPa.s at 20ºC	Legay S. (2015)
Storage stability test – **low temperature stability test for liquids**	CIPAC MT MT39.3	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	<u>Packaging: inert and closed packaging (glass flask, PTFE cap)</u> <u>Physical stability:</u> No deposit	Legay S. (2012)

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
			No phase partition No appearance change Viscosity: < 5 mPa.s at 20ºC (indicative value: 1.92 mPa.s)	
Effects on content of the active substance and technical characteristics of the biocidal product - **light**	The product is not exposed to the light. It's stored in opaque containers of metalic tins, so there is not necessary to realize any test.			
Effects on content of the active substance and technical characteristics of the biocidal product – **temperature and humidity**	NF X41-580-1:2006 (Freezing resistance test)	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	There are no deposit, no phase partition and no appearance change in the product after 24 hours at -10ºC.	Legay S. (2012)
Effects on content of the active substance and technical characteristics of the biocidal product - **reactivity towards container material**	UN Test C.1 Bartch nº: JC17621	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Temperature of 55°C ± 1°C for 7 days The test item JC-CTPI-3 was not considered to be corrosive to steel and aluminium under the testing conditions.	Legay S. (2021)
Wettability	Not applicable			
Suspensibility, spontaneity and dispersion stability	Not applicable			
Wet sieve analysis and dry sieve test	NF EN ISO 3251:2008	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole:	Non volatile matter content (% w/w): 9.2	Legay S. (2012)

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
		0.30%w/w		
Emulsifiability, re-emulsifiability and emulsion stability	Not applicable			
Disintegration time	Not applicable			
Particle size distribution, content of dust/fines, attrition, friability	Not applicable			
Persistent foaming	Not applicable			
Flowability/Pourability/Dustability	Not applicable			
Burning rate — smoke generators	Not applicable			
Burning completeness — smoke generators	Not applicable Not applicable			
Composition of smoke — smoke generators	Not applicable			
Spraying pattern — aerosols	Not applicable			
Physical compatibility	The product is not applied in combination with other products, so further studies are not needed.			
Chemical compatibility	The product is not applied in combination with other products, so further studies are not needed.			
Degree of dissolution and dilution stability	Not applicable			
Surface tension	OECD Guideline 115 (Surface Tension of Aqueous Solutions)	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Results of surface tension on two replicates: <u>Replicate 1:</u> Surface tension: 24.45 mN/m Standard deviation: 0.01 mN/m Temperature: 19.7ºC Surface age: 149 s <u>Replicate 2:</u> Surface tension: 24.46	Legay S. (2012)

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
			mN/m Standard deviation: 0.00 mN/m Temperature: 19.5ºC Surface age: 135 s	
Viscosity	OECD Test Guideline 114 (Viscosity of Liquids)	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Viscosity values are: 1.96 mPa.s at 20°C and 1.43 mPa.s at 40°C. After 24 months at 20ºC there was no significant change in the viscosity of the test ite, in commercial packaging.	Legay S. (2015)

Conclusion on the physical, chemical and technical properties of the product

JC-CTPI-3 is a yellowish solvent-based liquid with a characteristic hydrocarbon-like odour. The water solubility of the product does not reach the minimum required for testing of acidity and alkalinity. Therefore, it is not technically possible to be performed. The specific gravity resulted in 0.810 g/cm3.

The product is stable after 54ºC during 14 days and after 8 weeks at 40ºC. Regarding storage at low temperature there is not degradation after 7 days at 0ºC. The study of storage stability at long time shows that the product is stable at room temperature.

JC-CTPI-3 has been shown to be non-corrosive to metals (steel and aluminium)-

The surface tension for the product is 24.45 mN/m at 19.7ºC. The product has 9.2 % w/w of non-volatile matter content. The viscosity values for this product are 1.96 mPa.s at 20°C and 1.43 mPa.s at 40°C.

The formulation is not intended to be used with other products. JC-CTPI-3 is not considered to be potentially explosive. The preparation is not intended for use in combination with other products.

The formulation has been determined to have a flash point of 42.4ºC so according to CLP Regulation it is categorized as flammable category 3. The auto-ignition temperature of all components in the product is higher than 200 °C so the auto-ignition temperature for the product will be higher than 200ºC

2.2.3 Physical hazards and respective characteristics

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
Explosives	Study scientifically not necessary. The study does not need to be conducted because there are no chemical groups present in the molecule which are associated with explosive properties			
Flammable gases	Not applicable			
Flammable aerosols	Not applicable			
Oxidising gases	Not applicable			
Gases under pressure	Not applicable			
Flammable liquids	EU Method A.9 (Flash-Point)	Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole: 0.30%w/w	Flash Point: 42.4ºC	Legay S. (2012)
Flammable solids	Not applicable	Not applicable	Not applicable	Not applicable
Self-reactive substances and mixtures	Not applicable.			
Pyrophoric liquids	Not applicable			
Pyrophoric solids	Not applicable			
Self-heating substances and mixtures	Not applicable			
Substances and mixtures which in contact with water emit flammable gases	Not applicable			
Oxidising liquids	The study does not need to be conducted because there are no chemical groups present in the molecule which are associated with oxidising properties and hence, the classification procedure does not need to be applied.			
Oxidising solids	Not applicable			
Organic peroxides	The study does not need to be conducted because the substance does not fall under the definition of organic peroxides according to GHS and the relevant UN Manual of test and criteria.			
Corrosive to metals	UN Test C.1	Batch No.JC17621 Cypermethrin: 0.175 %w/w Tebuconazole: 0.30 %w/w IPBC: 0.30 %w/w Propiconazole:	No corrosion attack was occurred on the 3 sets of specimens after 7 days of exposure at the temperature of	REPORT No.402/21/1131Fa-e Laboratoire de Chimie-Écotoxicologie FCBA

Property	Guideline and Method	Purity of the test substance (% (w/w)	Results	Reference
		0.30%w/w	55+/-1°C and the loss mass was lower than 0,01% for the 3 sets of specimens	
Auto-ignition temperatures of products (liquids and gases)	The study does not need to be conducted because the individual auto-ignition temperature of all components in the product is higher than 200 °C so the auto-ignition temperature for the product will be higher than 200ºC.			
Relative self-ignition temperature for solids	Not applicable			
Dust explosion hazard	Not applicable			

Conclusion on the physical hazards and respective characteristics of the product
The formulation is not intended to be used with other products. JC-CTPI-3 is not considered to be potentially explosive nor corrosive. The preparation is not intended for use in combination with other products. The formulation has been determined to have a flash point of 42.4ºC so according to CLP Regulation it is categorized as flammable category 3. The auto-ignition temperature of all components in the product is higher than 200 °C so the auto-ignition temperature for the product will be higher than 200ºC.

2.2.4 Methods for detection and identification

Analytical methods for the analysis of the product as such including the active substance, impurities and residues									
Analyte (type of analyte e.g. active substance)	**Analytical method**	**Fortification range / Number of measurements**	**Linearity**	**Specificity**	**Recovery rate (%)**			**Limit of quantification (LOQ) or other limits**	**Reference**
					Range	Mean	RSD		
JC-CTPI-3 (Cyperme thrin: 0.175 % w/w; Tebucona zole: 0.30 % w/w; IPBC: 0.30 %	HPLC-UV	Spiking 2 x 6 times the matrix with each active ingredient: at 50 mg/1 for	Cyperm: R^2 > 0.99 Tebuc: R^2 > 0.99 Propic: R^2 > 0.99 IPBC: R^2 > 0.99 IPBC,	No interference at wave length (210 nm) of the active ingredie	Cyperm: [99.28-101.27] Tebuc: [97.93-	Cyperm: 100.4 % Tebuc: 99.00 % Propi	Cyperm: 0.7732% Tebuc: 0.5877% Propic	-	Legay S. (2012)

w/w; Propiconazole: 0.30 % w/w) Number of samples for calibration: 6		Tebuconazole, Propiconazole and IPBC, at 30 mg/1 for Cypermethrin	Propiconazole and Tebuconazole: Calibration range: 40-60 mg/L; 0.049 g/kg-0.074 g/kg Cypermethrin: Calibration range: 24-36 mg/L; 0.0296-0.0044 g/kg	nt to quantify or no interference greater than 3 % of the active ingredient to quantify by HPLC-UV	100.0] Propic: [97.83-99.59] IPBC: [96.24-105.97]	c: 98.73 % IPBC: 101.5 %	: 0.8265% IPBC: 3.195 %		

Analytical methods for water									
Analyte (type of analyte e.g. active substance)	**Analytical method**	**Fortification range / Number of measurements**	**Linearity**	**Specificity**	**Recovery rate (%)**			**Limit of quantification (LOQ) or other limits**	**Reference**
					Range	Mean	RSD		
Fish test solution : CaCl2, 2H2O: 294.0 mg/L MgSO4, 7H2O: 123.3 mg/L NaHCO3 : 63.0 mg/L KCl: 5.5 mg/L	GC-ECD	2 fortification levels (LOQ: 0.1 µg/L and 3.6 µg/L)/ 5 samples of WAF fish solutions spiked	Calibration was found to be linear, with a correlation coefficient (r) of 0.99 or greater.	Interference was detected at the retention time of cypermethrin in GC/ECD in WAF fish samples. Blank values do not exceed 30 % of LOQ.	[81.00-95.00]	89.0	7.45	0.1 µg/L in the WAF fish solutions	Legay S. (2014)

Conclusion on the methods for detection and identificationof the product
In accordance with results of the analytical method validation, all acceptance criteria were satisfied: the applied method fit the requirements of the validation for the quantitative analysis of each active substance in the test item. The analytical method for determination of cypermethrin in fish ecotoxicology solution was successfully validated according to SANC0/3029/99 rev.4.

2.2.5 Efficacy against target organisms

2.2.5.1 Function and field of use

JC-CTPI-3 is a solved-based wood preservative product applied indoors and outdoors as preventive and curative treatments by industrial and trained professional users.
It is intended to be use by superficial and impregnation application for preventive and curative treatment and by injection for curative treatment.

- Superficial Curative application: 300 ml of product per m^2 of wood.
- Superficial Preventive application: 200 grams of product per m^2 of wood.
- Impregnation-double vacuum process: 35 kg of product per m^3 of wood.
- Injection method. Curative application: 20.5 kg of product per m^3 of wood.

2.2.5.2 Organisms to be controlled and products, organisms or objects to be protected

JC-CTPI-3 is a wood preservative with insecticidal and fungicidal properties against fungi species (i.e.; brown rot and white rot fungui), wood boring beetles and termites of the genere of Reticulitermes spp.

2.2.5.3 Effects on target organisms, including unacceptable suffering

Wood boring beetle larvae are killed after contact with treated wood.
The termites eat the treated wood and distribute it around the colony, by trophapaxis, which causes the death, not only of those that have ingested the wood but of part of the colony.
The product acts as a preventive to fungi and prevents their attack. It causes a decrease in the degree of colonization of these fungi after contact with treated wood.
Unacceptable suffering for fungi, insect larvae and termites cannot be assessed.

2.2.5.4 Mode of action, including time delay

The biocidal product contains 4 active substance: IPBC (carbamate molecule), propiconazole and tebuconazole (triazole molecule) and cypermethrin (pyrethroide molecule).

Tebuconaloze and propiconalzole belong to the same fungicide group according to the Fungicide Resistance Action Committee (FRAC). Their mode of action is sterol biosynthesis in membranes, and the mechamism of action is the inhibition of demethylation (**D**e**M**ethylation **I**nhibitors). Their common name are Triazoles.
Regarding resistance, there are big differences in the activity spectra of DMI fungicides. Resistance is known in various fungal species. Several resistance mechanisms are known including target site mutations in cyp51 (erg 11) gene, e.g. V136A, Y137F, A379G, I381V;

cyp51 promotor; ABC transporters and others. Generally wise to accept that cross resistance is present between DMI fungicides active against the same fungus. DMI fungicides are Sterol Biosynthesis Inhibitors (SBIs), but show no cross resistance to other Sterol Biosynthesis Inhibitors classes. **Medium risk.**

IPBC has a Carbamate structure. The target sites of carbamates in fungui are cell membrane permeability and fatty acids. According to the FRAC, 2019, the risk of resistance formation against carbamate fungicides ir regarded to be low to medium and resistance management is required, in ddition, based on the unspecific mode of action of IPBC, the risk of resistance formation during incan preservation is regarded to be low. (IPBC PAR, 2013),

Regarding Cypermethrin, according to IRAC, it acts in sodium channel on the modulators of nerve action. Keep sodium channels open, causing hyperexcitation and, in some cases, nerve block. Sodium channels are involved in the propagation of action potentials along nerve axons.

2.2.5.5 Efficacy data

Experimental data on the efficacy of the biocidal product against target organisms							
Test substance	**Field of use envisaged**	**Organisms to be protected**	**Test organisms**	**Test method**	**Test system / concentrations applied / exposure time**	**Test results: effects**	**Reference**
JC-CTPI-3	Wood preservative Preventive treatment Curative tretament	*Pinus sylvestris*	Subterranean termite *Reticulitermes grassei*	EN118+EN73 (Evaporation)	• Superficial treatment (brushing) • 197.36 g/m^2 • Exposure: 8 weeks.	The study is validated. All the treated blocks are ranked 1 at the end of the study.	Report Nº: 29826-1-a
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Subterranean termite *Reticulitermes grassei*	EN118+EN84 (Leaching)	• Superficial treatment (brushing) • 197.43 g/m^2 • Exposure: 8 weeks.	The study is validated. All the treated blocks are ranked 1 at the end of the study.	Report Nº: 29826-2
JC-CTPI-3	Determination of toxic values.	*Pinus sylvestris*	Subterranean termite *Reticulitermes grassei*	EN 117+EN73 (evaporation)	• Vacumm impregnation. • Toxic values/b.r.v.: 22.02 Kg/m^3 • Exposure: 8 weeks.	Kill/cidal activity rate: >99 % after 8 weeks of exposure.	Report Nº: 29825-1-a
JC-CTPI-3	Determination of toxic values.	*Pinus sylvestris*	Subterranean termite *Reticulitermes grassei*	EN117+EN84 (Leaching)	• Vacumm impregnation. • Toxic values/b.r.v.: 26.03 Kg/m^3 • Exposure: 8 weeks.	Kill/cidal activity rate: >99 % after 8 weeks of exposure.	Report Nº: 29825-2-a
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Wood destroying basidiomicetes. *Coniophora puteana* *Gloeophyllum trabeum* *Poria placenta*	EN 113+EN73 (evaporation)	• superficial treatment • 100%(w/w) • Exposure 109 days	Reduction between 2.29% and 2.09 % mean mass loss of wood.	Report Nº: 29826-7-a
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Wood destroying basidiomicetes. *Coniophora puteana (wet rot)* *Gloeophyllum trabeum(brown rot fungi)* *Poria placenta (brown rot fungi)*	EN 113+EN84 (Leaching)	• superficial treatment • 100%(w/w) • Exposure 109 days	Reduction between 2.54% and 1.32 % mean mass loss of wood.	Report Nº: 29826-8-a

JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Wood destroying basidiomicetes. *Coniophora puteana* *Gloeophyllum trabeum* *Poria placenta*	EN 113+EN73 (evaporation)	• Vacuum impregnation. • Concentration of the product tested: 3.75, 4.58, 5.42, 6.25 and 8.33% (w/w) (w/w) Target retentions: 18, 22, 26, 30 and 40 Kg/m2 • Exposure period: 16 weeks	Toxic values: *Coniophora puteana* - Concentration of test product: 4.58-5.42% - Retention of test product: 22.25-26.71Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 2.78% Mid-toxic value=b.r.v.= 24.48 kg/m^3. Critical value: 48.96 g/m^2 Toxic values: *Gloeophyllum trabeums* - Concentration of test product: <3.75% - Retention of test product: 0.00-18.84 Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 30.86% Mid-toxic value: 9.42 kg/m^3 b.r.v.= 18.84 kg/m^3. Critical value: 37.68 g/m^2 Toxic values: *Poria placenta* - Concentration of test product: 3.75-4.58% - Retention of test product: 18.28-22.62 Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 4.13% Mid-toxic value=b.r.v.: 20.45 kg/m^3 Critical value: 40.9 g/m^2	Report Nº: 29825-6-a

JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Wood destroying basidiomicetes. *Coniophora puteana* *Gloeophyllum trabeum* *Poria placenta*	EN 113+EN84 (Leaching)	• Vacuum impregnation. • Concentration of the product tested: 3.75, 4.58, 5.42, 6.25 and 8.33% (w/w) (w/w) Traget retenctions: 18, 22, 26, 30 and 40 Kg/m^2 • Exposure period: 16 weeks.	Toxic values: *Coniophora puteana* - Concentration of test product: <3.75% - Retention of test product: 0.00-19.16 Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 52.19% Mid-toxic value:9.58 kg/m^3 b.r.v.= 19.16 kg/m^3. Critical value: 38.32 g/m^2 Toxic values: *Gloeophyllum trabeums* - Concentration of test product: <3.75% - Retention of test product: 0.00-18.63 Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 35.23% Mid-toxic value: 9.21 kg/m^3 b.r.v.= 18.42 kg/m^3. Critical value: 36.84 g/m^2 Toxic values: *Poria placenta* - Concentration of test product: < 3.75% - Retention of test product: 0.00-18.63Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 51.35% Mid-toxic value: 9.31 kg/m^3 b.r.v.= 18.63 kg/m^3. Critical value: 37.26 g/m^2	Report Nº: 29825-7-a

JC-CTPI-3	Wood preservative Preventive treatment	*Fagus sylvatica*	Turkey tail *Coliolus versicolor*	EN 113+EN73 (evaporation)	• Vacuum impregnation. • Concentration of the product tested: 4.23, 5.16, 6.09, 7.03 and 9.38% (w/w) Traget retenctions: 18, 22, 26, 30 and 40 Kg/m^3 • Exposure period: 16 weeks.	Toxic values: Concentration of test product : 7.03-9.38 % Mid-toxic value= b.r.v: 34.921kg/m^3 Critical value: 69.842 g/m^2	Report Nº: 29825-8
JC-CTPI-3	Wood preservative Preventive treatment	*Fagus sylvatica*	Turkey tail *Coliolus versicolor*	EN 113+EN84 (Leaching)	• Vacuum impregnation. • Concentration of the product tested: 4.23, 5.16, 6.09, 7.03 and 9.38% (w/w) Traget retenctions: 18, 22, 26, 30 and 40 Kg/m^3 • Exposure period: 16 weeks.	Toxic values: - Concentration of test product: 7.03-9.38% - Retention of test product: 29.914-38,66 Kg/m^3 - Mean correctedmass lost for the highest failing concentration: 9.054% Mid-toxic value=b.r.v: 34.29 kg/m^3 Critical value: 68.58 g/m^2	Report Nº: 29825-9-a
JC-CTPI-3	Wood preservative Preventive treatment	*Fagus sylvatica*	White rot fungi *Coliolus versicolor*	EN 113+EN73 (evaporation)	• Superficial treatment • 100% (w/w) • Exposure 113 days.	Toxic values: Concentration of test product : 100% Mean retention of the test product (b.r.v.): 206.62 g/m^2 Mean corrected mass lost: 1.98 %.	Report Nº: 29826-9-a
JC-CTPI-3	Wood preservative Preventive treatment	*Fagus sylvatica*	White rot fungi *Coliolus versicolor*	EN 113+EN84 (Leaching)	• Superficial treatment. • 100% (w/w) • Exposure 113 days.	Toxic values: Concentration of test product : 100% Mean retention of the test product (b.r.v.): 200.98 g/m^2 Mean corrected mass lost: 1.02 %.	Report Nº: 29826-10-a
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Blue stain *Aureobasidium pullullasn P268* *Sclerophoma pithyophila S231*	EN 152	• Vacuum application • 100% (w/w) •Type A (3 coats of varnish) •Natural ageing: 6 months •Exposure: 6 weeks. • Retention (toxic values): 33.07 ±0.99 Kg/m^3.	Visual examination after biological essay is 0.17. At the end of test no individual rating ≥2. Minimun stain-free zone: 6.49. Mean stain-free zone:7.07. The data of the speciments of the reference product validate the assay	Report Nº: 29825-5-a

						but the test has not provided data from the control specimens.	
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	Blue stain *Aureobasidium pullullasn P268* *Sclerophoma pithyophila S231*	EN 152	•Brushing procedure • 100% (w/w) •Varnising of specimentes:Type A. •Natural ageing: 6 months. •Exposure: 6 weeks. •Retention (toxic values): 198.47 ±0.89 g/m^2.	Visual examination after biological essay is 1. At the end of test no individual rating ≥2. Minimun stain-free zone: 2.32.(Average 3.69) Mean stain-free zone: 5.26 The data provided for the reference test speciments are not valid, nor have they provided the data from the control test speciments.	Report Nº: 29826-6-a
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	House longhorn beetle*: Hylotrupes bajulus (L.)*	EN46-1+EN84 (Leaching)	•Dipping application method •.100 % (w/w) • Toxic values: 200.85±9.24g/m^2	>98% larvae were recovered dead without having made tunnels in the wood. Only one larva was not recovered. At least 80% of the larvae inserted in all untreated control specimens survive.	Report Nº: 29826-5-a
JC-CTPI-3	Wood preservative Preventive treatment	*Pinus sylvestris*	House longhorn beetle*: Hylotrupes bajulus (L.)*	EN46-1+ EN73 (evaporation)	•Dipping application method •.100 % (w/w) • Toxic values: 200.95±9.24g/m^2	All the larvae (6 specimens*10 larvae) were recovered dead without having made tunnels in the wood. At least 80% of the larvae inserted in all untreated control specimens, survive.	Report Nº: 29826-4-a
JC-CTPI-3	Determination of the toxic values-	*Pinus sylvestris*	House longhorn beetle*: Hylotrupes bajulus (L.)*	EN47+ EN73 (evaporation)	•Vacuum application • Larvae in Category 1 •3.75%, 4.58%, 5.48%, 6.25% and 8.33% • Toxic values: 21.78±0.77 Kg/m^3 19,293 Kg/m^3	Mean retention of the test product (b.r.v.): 19,293 Kg/m^3 (3.75-4.58%) At least 90% of the larvae inserted in all untreated control specimens and specimens treated with the solvent, survive.	Report Nº: 29826-3-a

					•Exposure: 12 weeks		
JC-CTPI-3	Determination of the toxic values-	*Pinus sylvestris*	House longhorn beetle*: Hylotrupes bajulus (L.)*	EN47+ EN84 (leaching)	•Vacuum application • Larvae in Category 1 •3.75%, 4.58%, 5.48%, 6.25% and 8.33% • Toxic values: 17.24±0.78 Kg/m^3 •Exposure: 12 weeks.	Mean retention of the test product (b.r.v.): 17.24±0.78 Kg/m^3 (<3.75%) At least 90% of the larvae inserted in all untreated control specimens and specimens treated with the solvent, survive.	Report Nº: 29825-4-a
JC-CTPI-3	Wood preservative Curative treatment	Enriched oak sapwood	Powder post beetles *Lyctus brunneus*	NF EN 273	•Brushing •150 g/m^2 • Exposure 12 weeks	kill/cidal activity rate: 97% after 84 days of exposure	Report Nº 401/12/06 4F/1/b/e
JC-CTPI-3	Wood preservative Curative treatment	Scots pine sapwood	Common furniture beetle. *Anobium punctatum (L.)*	NF EN 48	• Surface application. • 242.6 g/m^2 / 304.41 ml/m^2 •Exposure 55 days (7 weeks). Quick action.	Mortality rate: killed 92% of total larvae and no more than 2 living larvae were found. Almost 90% of the larvae were alive at the end of the test, in the controls. The test is valid.	Report Nº 401/12/06 4F/1/a/e
JC-CTPI-3	Wood preservative Curative treatment	*Pinus sylvestris*	House longhorn beetle. *Hylotrupes bajulus (L.)*	EN 1390	• Brushing • 241.49 g/m^2 / 303 ml/m^2 •Exposure 12 weeks. Quick action.	Mortality rate: 91.5 % after 84 days of exposure. 10 larvae of the untreated control specimente were alive. The test is valid.	Report Nº: 29826-3-a

Conclusion on the efficacy of the product

The applicant has submitted 25 tests to support a product for preventive and curative treatment against fungi species, woodworm and termites (*Reticulitermes spp)*, for use up to class 3.

Subterranean termites (Preventive and curative use)

According to the TNsG, the treatment against termites are designed to kill termites that their are already found in the wood and to prevent the degradation of wood. So preventive efficacy test can be extrapolated for a curative treatment.

The applicant has submitted 4 trials to support the claim against termites for superficial and penetrating treatments. According to the European Standard EN 599-1, the product have passed ageing procedure in accordance with EN 73 and EN 84 standards

-Dose rate by superficial treatment: **197.36 g/m^2 (EN 73) and 197.43 g/m^2 (EN 84)**
-Dose rate by penetrating process: **22.02 Kg/m^3 (EN 73) and 26.03 Kg/m^3 (EN 84)**

Wood destroying basidiomicetes + *Coriolus versicolor.* (Preventive use)

The applicant has contributed eight tests with the UNE 113 standard to support the claim of wood destroying basidiomicetes and *Coriolus versicolor*. They have been developed with aeging procedure EN 73 and EN 84 for both surface treatment and impregnation treatment.
According to standard EN 599-1, for products by superficial treatment with coating, the EN 113 standard must be used. EN 113 standard is done by treatment by impregnation, not surface treatment. The applicant has requested to modify that standard to adjust the method of application by dipping (according to the standard CEN/TS 839:2010). In adittion only one concentration has been used: 100% (ready to use). We consider these tests as additional essays but we do not take them into account in the evaluation for the minimum efficacy required since, according to EN 599-1, tests performed according to impregnation treatment, must be provided for both kind of treatments.

	EN113 (EN73).		EN113 (EN84)	
	Biological reference value kg/m^3 (According to point 5.2.16 of the EN 599-1 sandard)	*Critical value g/m^2* (According to point 5.2.15 of the EN 599-1 sandard)	*Biological referent value kg/m^3* (According to point 5.2.16 of the EN 599-1 sandard)	*Critical value g/m^2* (According to point 5.2.15 of the EN 599-1 sandard)
Coniphora puteana	24.48	48.96	19.16	38.32
Gloeophyllum trabeum	18.84	37.68	18.42	36.84
Poria placenta	20.45	40.9	18.63	37.26
Coriolus versicolor	34.91	69.842	34.29	68.58

The biological reference value for the most aggressive fungui (*C. versicolor*) is: **34.91 Kg/m^3**
The critical value for for the most aggressive fungui (*C. versicolor*): **69.842 g/m^2**

No test has been provided in accordance with the CEN/TS 839 standard, therefore, in accordance with point 5.2.18 of the standard EN599-1, for use class 3 surface treatment,

the wood must always be covered with a top coat.

Blue stain. (Preventive use)
The applicant has provided two tests against blue stain. They have not been included a virulence control. Therefore, we consider that these test are not acceptable. For that reason, this target organism is not granted.

Insects spp. (Preventive and curative use)
Preventive:
The tests provided against insects for preventive treatment meet the requirements established by the standard EN 599-1.
The applicant has provided four tests against *Hyloyrupes bajulus*, with both ageing tests, both for superficial treatment and penetrating procces.

According to the TNsG on product evaluation (2008) *for general claims against "wood boring beetles", it is acknowledged that the majority of applications for authorization are likely to be for treatment against H. bajulus. Therefore, data against this beetle species should be available and will be considered adequate to cover this claim*. Therefore, we accept that the applicant has only provided tests on this insect.

- Preventive dose rate by superficial treatment: **200.95 g/m^2 (EN 73) and 200.85 g/m^2 (EN 85)**
- Preventive dose rate by penetrating process: **19.29 Kg/m^3 and 17.24 Kg/m^3**

Curative:

Superficial application:
The applicant has submitted three tests against *Hylotrupes bajulus*, *Anobium puctatum* and *Lyctus bruneus*.

In relation to NF EN 273:2003 standard, this norm ceased to be in force in 2013 without a substitution norm. Therefore, we consider this test as an additional norm, but not as a key norm. According to the basic norm of curative treatment EN14128, in point 5.2.1., it does not consider that there are valid standards for *Lyctus bruneus*, but if a specific curative treatment is required, a protective curative of the wood can be applied for *Hylotrupes bajulus*. In this way, the test against *Hylotrupes bajulus*, carried out with the corresponding and updated standard, is taken into consideration for the organism *Lyctus bruneus*.

Lyctus brunneus (NF 273)	150 g/m^2
Anobium puctatum (NF EN 48)	242.6 g/m^2 – 304.41 ml/m^2
Hylotrupes bajulus (EN 1390)	241.49 ±4.09 g/m^2 – 303 ±3.28 ml/m^2

- Curative dose rate by superficial treatment: **241.49 ±4.09 g/m^2 or 303 ±3.28 ml/m^2**

Injection application:
Borehole injection with pressure method has been requested for curative treatment. According to the specifications of the efficacy guidelines, injection treatment is considered neither a superficial treatment nor a penetrating process. As there is no standardization in this method, we do not consider mandatory to provide tests using this method but rather

the provision of specific and relevant data, especially in the penetration/diffusion of the product into the holes.

Specific information regarding this method has been requested.

The product is applied into pre-drilled holes. The application rates, according to the applicant, is 80 ml biocidal product per hole.

This dose rate is an average acquired by the experience of years, since it depends on the type of wood, the degree of attack, the amount of sapwood…etc.

The plastic nozzles are inserted into the wood (diameter from 6.5 to 9.5 mm) . They are come with a non-return valve.

The distance between holes is 25 cm across the fiber direction in a staggered pattern (An equilateral triangle of 25cm side), and the product is injected with an air-less pressure device at a pressure between 6-8 bars. The injectors are left forever inside the wood.

This type of tretament is focuses on woodent parts with a secction greater than 7 cm.

The use of injection is often applied in situations of large infestation of buildings in which high attacks of, especially woodworm, have been detected. In the context of an authorization for a wood preservatives, the target insects for which is authorize will be only: *A. puctatum, H. bajulus and L. bruneus and* subterranean termites.(*Reticulitermes spp*)

No efficacy test has been provided to support the application by injection or penetration/diffusion of the wood.. In any case, it had been decided to describe the approach to calculate a theoretical dose of efficacy based on information provided by the applicant, specifications of a technical sheet on injection (german DGfH 2002) , and simple calculations in order to compare it with the effective dose for the curative surface treatment.
The specifications of the German document have finally been taken as a theoretical basis and it does not allow to extrapolate the real diffusion of the product. These calculations are merely theoretical.

We assume:
Diameter of injectors: 6.5mm (We chose the smallest hole diameter to have the smallest hole volume. In this case the dose per hole will be dispersed in a larger volume that if it were a 9.5mm hole, which will give a smaller dose per square meter, which will be the worst case to compare it with the surface application dose.)
Depth of holes: 4.6 cm (depth of holes is usually about ¾ of this thickness. We assume the sections is at least 7cm).
Volume of hole (cilindric): 1.526 ml.
Thanks to curative test against *Anobium punctatum,* (EN 48), we know that the distance between larvae and the nearest coated face were between 8 and 15 mm. Therefore, 15mm is the maximum distance we know of that penetrates the wood and can kill an *Anobium punctatum* larva.
On the other hand, according to DGfH 2002, information sheet, "*Sonderverfahren zur Behandlung von Gefahrstellen*", the penetration along the fiber is usually 10 to 20cm and we assumed to be 12,5cm. (taking into account the distance between holes is 25cm)
We assume, therefore:
Diameter of injectors: 6.5mm +(125 mm*2)=256.5 mm
Depth of holes: 46 mm+15mm=61mm
Volume of hole (cilindric): 3152.059 ml.

Volumen of the impregnated part: 3152.059 -1,526=3150.533 ml
Holes are filled with 80ml product.
Density of JC-CTPI-3 is 0.81g/ml. Therefore, we applied 64,8 g product in 3150.533 ml
Theoretical dose rate is: 20.5Kg/m^3

The toxic value for curative surface treatment is approximately 300 ml/m^2. If we add the penetration of the product to about 15mm, this gives a dose **of 16.2 Kg/m^3**

Therefore, we consider that 80ml of product per borehole and placed 25cm apart from each other along the fiber is dispersed along the wood in a dose ratio that could be sufficient to be effective, even so, we consider that this application can only be authorized with the contribution of a monitoring study on a treated wood by injection that confirm the proper diffusion of the product into the wood.

Summary data:

Treatment	**Treatment**	**Organisms**	**Wood**	**Dose rate (most aggressive organism and worst case of aegin)**	**Recommended dose for all proposed organisms**
Preventive Use class 3	Surface	Insects: *Hylotrupes bajulus*	*Pinus sylvestris*	200.95 g/m^2	200 g/m^2
		Fungui: *Coniophora puteana* *Gloeophyllum trabeum* *Poria placenta* *Coriolus versicolor*	*Fagus sylvatica*	68.58 g/m^2	
		Termites: *Reticulitermes grassei.*	*Pinus sylvestris*	197.43 g/m^2	
	Impregnation	Insects: *Hylotrupes bajulus*	*Pinus sylvestris*	26.03 Kg/m^3	34.29Kg/m^3
		Fungui: *Coniophora puteana* *Gloeophyllum trabeum* *Poria placenta* *Coriolus versicolor*	*Fagus sylvatica*	34.29 Kg/m^3	
		Termites: *Reticulitermes grassei*	*Pinus sylvestris*	26.03 Kg/m^3	
Curative	Surface	Insects: *Hylotrupes bajulus* *Anobium punctatum*	*Pinus sylvestris*	241.49 ±4.09 g/m^2 Or 303 ±3.28 ml/m^2	300 ml/m^2
		Termites: *Reticulitermes*		197.43 g/m^2	

		grassei.			
	Injection	-	-	-	20.5 Kg/m^3

Conclusion:
The product has demonstrated its preventive efficacy against insects and fungi (including *Coriolus versicolor*) by penetrating process for softwoods and hardwoods.
The product has demonstrated its preventive efficacy against insects (including termites) and fungi (including *Coriolus versicolor*) by superficial treatment for softwoods.
Therefore, the product can be classified for use class 1, 2 and 3.

O the other hand the product has also demonstrated its curative efficacy against insects (including termites) by supeficial treatment and injection for softwoods.

2.2.5.6 Occurrence of resistance and resistance management

Accoding to the FRAC, regarding these kind of substances, resistance is known in various fungal species. Several resistance mechanisms are known incl. target site mutations in cyp51 (erg 11) gene, e.g. V136A, Y137F, A379G, I381V; cyp51 promotor; ABC transporters and others.

Generally wise to accept that cross resistance is present between DMI fungicides active against the same fungus. DMI fungicides are Sterol Biosynthesis Inhibitors (SBIs), but show no cross resistance to other SBI classes. Medium risk.

Resistance to DMIs is mostly characterized by a slow, step-wise erosion of efficacy over several years of intensive use rather than by a rapid loss of control.
- Users must adhere to the manufacturers' recommendations. In many cases, reports of "resistance" have, on investigation, been attributed to cutting recommended use rates, or to poorly timed applications.
- If the performance of SBIs should decline and sensitivity testing has confirmed the presence of less sensitive isolates, SBIs should only be used in mixture or alternation with effective non cross-resistant partner fungicides.

The active substance IPBC is not specificay on list of fungicide commen names as reference substante for any group from FRAC. Anyway, IPBC has an carbamet molecule and we can make an approach to the carbamate group. According to FRAC carbamates has low to medium risk. Resistance management required.

The number of treatments to wooden structures with carbamantes is generally low (in many cases, only one application is made per lifetime of timber structures), resulting in a low selection pressure. IPBC has been used for many years in wood preservation without the reporting of cases of resistance.

FRAC focuses mainly on fungicide resistance to products intended for agriculture. In the list of pathogenic species, no wood destroying species are included.

Resistance to pyrethroid insecticides such as cypermethrin has been reported for a number of pests both in agriculture and public health. However, no data has been found in the

literature regarding resistance occurrence to cypermethrin among wood-boring beetle and termites.

To ensure a satisfactory level of efficacy and avoid the development of resistance, the following recommendations have to be implemented:
- Always read the label or leaflet before use and follow all the instructions provided.
- The users should inform if the treatment is ineffective and report straightforward to the registration holder.

2.2.5.7 Known limitations

No limitations are known.

2.2.5.8 Evaluation of the label claims

Claim matrix:

User category	Industrial: Trained porfessional	A.20; A.30
Wood category	Depends on target organisms. Softwood and hardwood.	B.10 B.20
Wood product	Solid wood	C.10
Application aim	Preventive Curative	D.40 D.50
Field of use	User class 1 User class 2 User class 3	E.10 E.20 E.30
Method of application rate	Superficial application. Brush *in situ* Superficial application. Automated spray Spray *in situ.* (not authorized) Superficial application. Automated dipping Pressure process. Vacuum pressure impregnation Injection. (not authorized)	F.10 F. 11 F.14 F.31 F.20
Target organisms	Wood rotting basidiomycetes (only preventive) Soft rot fungi. (only preventive) House longhorn beetle. Common furniture beetle. Powder post beetle. Subterranean termites.	G.10 G.11 G.31 G.32 G.33 G.51

2.2.5.9 Relevant information if the product is intended to be authorised for use with other biocidal product(s)

Not applicable.

2.2.6 Risk assessment for human health

The biocidal product contains four active susbtances (propiconazole, tebuconazole, IPBC and cypermethrin). No studies was submitted with the biocidal product. No human data are available. Information of the components included in data sheets, in website of ECHA or other data base has been used. Kerosine, low boiling point naphtha and 2-(2-butoxyethoxy)ethanol included in the composition have been considered as substances of concern (SoC) because some hazard assessment of the biocidal product are due to them and they are present in concentrations greater of 0.1%.

The classification of the biocidal product was carried out taking into account the Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Regulation CLP).

2.2.6.1 Assessment of effects on Human Health

Skin corrosion and irritation

Conclusion used in Risk Assessment – Skin corrosion and irritation	
Value/conclusion	Skin irritant
Justification for the value/conclusion	Use CLP Regulation
Classification of the product according to CLP	Skin Irrit. 2; H315 Causes skin irritation

Data waiving	
Information requirement	Skin irritation study
Justification	No studies were submitted with the biocidal product about skin corrosion and irritation. The CLP Regulation will be used in order to obtain the classification. Toxicological information of the components are included in the dossier. Two components are classified as skin irritants according to the data sheets. This data has been confirmed when the information of chemical substance in ECHA website has been checked. In addition, other information has been looked up, for example "*Concawe report about the Hazard classification and labelling of petroleum substances in the European Economic Area – 2015*". According to CLP criteria (Table 3.2.3 of the regulation), one of them is in sufficient concentrations to classify the biocidal product applying generic concentration limits (≥10%) when the additivity approach is applicable. This component is a kerosine (petroleum), hydrodesulfurized and it would be included in the section 2.1.2.3 Qualitative and quantitative information on the composition of the biocidal product of the PAR. An updated of Concawe in 2020 has been published and also this kerosene is classified as H315 (*Report no. 22/20. Hazard Classification*

	and Labelling of Petroleum Substances in the European Economic Area – 2020). The data sheet of this substance included the H315. More information about the classification of this substance and the product regarding the skin irritation has been included in Confidential PAR.

Eye irritation

Conclusion used in Risk Assessment – Eye irritation	
Value/conclusion	Eye irritant
Justification for the value/conclusion	Use CLP Regulation
Classification of the product according to CLP	Eye Irrit. 2; H319 Causes serious eye irritation

Data waiving	
Information requirement	Eye irritation study
Justification	No studies were submitted with the biocidal product about eye irritation. The CLP Regulation will be used in order to obtain the classification. Toxicological information of the components is included in the dossier. Some components are classified as eye irritants according to the data sheets. This data has been confirmed when the information of chemical substance in ECHA website and Annex VI of CLP regulation has been checked. In addition, other information has been looked up, for example "*Concawe report about the Hazard classification and labelling of petroleum substances in the European Economic Area – 2015*" (updated in 2020). According to CLP criteria (Table 3.3.3 of the regulation), they are in sufficient concentrations to classify the biocidal product applying generic concentration limits when the additivity approach is applicable. One of the component is 2-(2-butoxyethoxy)ethanol and it would be included in the section 2.1.2.3 Qualitative and quantitative information on the composition of the biocidal product of the PAR. This component together the low boiling point naphtha mentioned in the section skin irritation are the coformulants with eye irritant properties.

Respiratory tract irritation

Conclusion used in the Risk Assessment – Respiratory tract irritation	
Justification for the conclusion	Some components of the biocidal product are classified as STOR RE 3 with the hazard statements H335 or H336, category 3. This information has been included in the data sheets of the components or, in the case of the low boiling point naphtha or kerosines, according to the information of chemical substance in ECHA website and Annex VI of CLP regulation. In addition, other information has been looked up, for example "*Concawe report about the Hazard classification and labelling of petroleum substances in the European Economic Area –*

	2015" (updated in 2020). On the other hand, the *Guidance on the Application of the CLP Criteria; Guidance to Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures; Version 4.1; June 2015* stablish the following: *"Classification in STOT-SE Category 3 for respiratory tract irritation and narcotic effects does not take potency into account and consequently does not have any guidance values. A pragmatic default generic concentration limit of 20% is suggested, although a lower or higher specific concentration limit may be used where it can be justified".* The applicant has not submitted any information about respiratory tract irritation and, taking into account the guidance, ES CA use the default value of 20%. In addition, regarding the concentration of the substances with these hazard statements, the biocidal product is classified as STOT-RE 3; H336 May cause drowsiness or dizziness.
Classification of the product according to CLP	STOT-RE 3; H336 May cause drowsiness or dizziness

Data waiving	
Information requirement	Respiratory tract irritation study
Justification	The *Guidance on the Application of the CLP Criteria; Guidance to Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures; Version 4.1; June 2015* stablishes an default value of 20% and ES CA will use this value.

Skin sensitization

Conclusion used in Risk Assessment – Skin sensitisation	
Value/conclusion	No a skin sensitizer
Justification for the value/conclusion	Use CLP Regulation
Classification of the product according to CLP	Not classified

Data waiving	
Information requirement	Skin sensitisation study
Justification	No study was submitted with the biocidal product. We think that the CLP Regulation could be used. In this sense, some substances included in the biocidal product could produce an allergic reaction according to data sheets and CAR of the active substances, and, Annex VI of CLP regulation. The active substances: propiconazole and IPBC are not included in the biocidal product at sufficient concentration(s) to trigger a human health classification as sensitising

	but, according to the Regulation 286/2011 of 10 March 2011 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (section 2.8, Annex II), the label on the packaging of mixtures not classified but containing at least one substance classified as sensitising and present in a concentration equal to or greater than that specified in Table 3.4.6 of Annex I, of this regulation, shall bear the statement: EUH208 — "Contains (name of sensitising substance). May produce an allergic reaction". For this reason, the label of JC-CTPI-3 will include the statement: EUH 208: "Contains propiconazole and IPBC. May produce an allergic reaction" according to CLP Regulation.

Respiratory sensitization (ADS)

Conclusion used in Risk Assessment – respiratory sensitisation	
Value/conclusion	Not respiratory sensitiser
Justification for the value/conclusion	No study on the respiratory sensitisation of the product has been performed.
Classification of the product according to CLP	Not classified

Data waiving	
Information requirement	Respiratory sensitisation study
Justification	No data about respiratory sensitization of the biocidal product was submitted. Nevertheless, the components of JC-CTPI-3 are not classified as repiratory sensitizers and, so, the biocidal product is not classified.

Acute toxicity

Acute toxicity by oral route

Value used in the Risk Assessment – Acute oral toxicity	
Value	No classification about oral acute toxicity. ATE_{mix} oral > 2000mg/kg
Justification for the selected value	Use the CLP Regulation
Classification of the product according to CLP	No classification

Data waiving

Information requirement	Oral acute toxicity study
Justification	No studies were submitted with the biocidal product. Taking into account the toxicology of four active substances and SoC of the biocidal product, the CLP regulation has been used. The ATE_{mix} has been calculated according to the *Guidance on the Application of the CLP Criteria; Guidance to Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures; Version 4.1; June 2015*. The following formula has been used: $$\frac{100}{ATE_{mix}} = \sum_{n} \frac{C_i}{ATE_i}$$ The result indicates that ATE_{mix} was greater than > 2000mg/kg. According to the tables 3.1.1. and 3.1.2. of CLP Regulation, the conclusion is that the biocidal product is not classified by oral route.

Acute toxicity by inhalation

Value used in the Risk Assessment – Acute inhalation toxicity	
Value	ATE_{mix} > 180 mg/l
Justification for the selected value	Use the CLP Regulation
Classification of the product according to CLP	No classification

Data waiving	
Information requirement	Inhalation acute toxicity study
Justification	No studies were submitted with the biocidal product. Taking into account the toxicology of four active substances and SoC of the biocidal product, the CLP regulation has been used. The ATE_{mix} has been calculated according to the *Guidance on the Application of the CLP Criteria; Guidance to Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures; Version 4.1; June 2015*. The following formula has been used: $$\frac{100}{ATE_{mix}} = \sum_{n} \frac{C_i}{ATE_i}$$ The CARs of the active substances include the information about CL_{50} depending on aerosol, dust or other type exposure route (the majority of the values are included as mg/l). The result indicates that ATE_{mix} was greater than the indicated to classify for category 4. (ATE_{mix} > 180 mg/l). According to the tables 3.1.1. and 3.1.2. of CLP Regulation, the conclusion is that the biocidal product is not classified by inhalation route.

Acute toxicity by dermal route

Value used in the Risk Assessment – Acute dermal toxicity	
Value	No classification about dermal acute toxicity. ATE_{mix} dermal > 2000mg/kg
Justification for the selected value	No classification of the components of the biocidal product by dermal route. Use the CLP Regulation
Classification of the product according to CLP	No classification.

Data waiving	
Information requirement	Dermal acute toxicity study
Justification	No studies were submitted with the biocidal product. The data sheets of the components and the information included in website of ECHA do not include any data about dermal acute toxicity. The components of the biocidal product are not classified by dermal acute toxicity. Taking into account the toxicology of four active substances and SoC of the biocidal product, the CLP regulation has been used. The ATE_{mix} has been calculated according to the *Guidance on the Application of the CLP Criteria; Guidance to Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures; Version 4.1; June 2015*. The following formula has been used: $$\frac{100}{ATE_{mix}} = \sum_{n} \frac{C_i}{ATE_i}$$ The result indicates that ATE_{mix} was greater than > 2000mg/kg. According to the tables 3.1.1. and 3.1.2. of CLP Regulation, the conclusion is that the biocidal product is not classified by dermal route.

Information on dermal absorption

Value(s) used in the Risk Assessment – Dermal absorption	
Substance	JC-CTPI-3
Value(s)*	75%
Justification for the selected value(s)	Guidance on Dermal Absorption, EFSA Journal 2012;10(4):2665

* No dermal absorption study on JC-CTPI-3 was submitted.

Data waiving	
Information requirement	Dermal absorption studies
Justification	A study of dermal absorption with the biocidal product was required by ES CA but the applicant justified the no submission of data because

	use the Guidance on Dermal Absorption, EFSA Journal 2012;10(4):2665. The applicant justify the election of a default value of 75% following EFSA guidelines on dermal absorption because it is a ready to use product and the concentration of the active substances included in the composition is ≤ 5%. ES CA considers that the justification is acceptable and the default value of 75% is believed to represent a sufficient conservative approach for human exposure.

Available toxicological data relating to non active substance(s) (i.e. substance(s) of concern)

The biocidal product contain kerosine. This substance is classified in Annex VI according to CLP Regulation as Asp. Tox. 1 with the hazard pictogram GHS08 and the hazard statement H304 May be fatal if swallowed and enters airways.

The CLP Regulation stablishes the following with this hazard:

In order to classify the mixtures when data are not available for the complete mixture, the bridging principles must be used: "*where the mixture itself has not been tested to determine its aspiration toxicity, but there are sufficient data on the individual ingredients and similar tested mixtures to adequately characterise the hazard of the mixture, these data shall be used in accordance with the bridging principles set out in section 1.1.3. However, in the case of application of the dilution bridging principle, the concentration of aspiration toxicant(s) shall be 10 % or more*". Taking into account this criteria and the concentration of this substance in the biocidal product, JC-CTPI-3 should be classified as Asp. Tox. 1 with the hazard pictogram GHS08 and the hazard statement H304 May be fatal if swallowed and enters airways.

Available toxicological data relating to a mixture

No toxicological data of the biocidal product or of the other product with similar composition were submitted. CLP regulation has been used taking into account the different hazard statements of the components of the biocidal product.

Other

Tebuconazole is classified, among other, as Repr. Cat. 2 (H361 Suspected of damaging fertility or the unborn child). Nevertheless, according to CLP Regulation, in order to classify the mixtures when data are not available for the complete mixture, the bridging principles must be used: "*the mixture shall be classified as a reproductive toxicant when at least one ingredient has been classified as a Category 1A, Category 1B or Category 2 reproductive toxicant and is present at or above the appropriate generic concentration limit as shown in Table 3.7.2 for Category 1A, Category 1B and Category 2 respectively"*. The table 3.7.2 stablishes the generic concentration limits in CLP Regulation:

Table 3.7.2

Generic concentration limits of ingredients of a mixture classified as reproduction toxicants or for effects on or via lactation that trigger classification of the mixture

Ingredient classified as:	Generic concentration limits triggering classification of a mixture as:			
	Category 1A reproductive toxicant	Category 1B reproductive toxicant	Category 2 reproductive toxicant	Additional category for effects on or via lactation
Category 1A reproductive toxicant	≥ 0,3 % [Note 1]			
Category 1B reproductive toxicant		≥ 0,3 % [Note 1]		
Category 2 reproductive toxicant			≥ 3,0 % [Note 1]	
Additional category for effects on or via lactation				≥ 0,3 % [Note 1]

Note

The concentration limits in the table above apply to solids and liquids (w/w units) as well as gases (v/v units).

Note 1

If a Category 1 or Category 2 reproductive toxicant or a substance classified for effects on or via lactation is present in the mixture as an ingredient at a concentration above 0,1 %, a SDS shall be available for the mixture upon request.

The concentration to classify *Category 2 reproductive toxicant* should be ≥ 3% but as the concentration of tebuconazole in the product is 0.3%, JC-CTP3 will not classify with this hazard statement.

IPBC is classified, among other, as STOT Re 1 (H372 Causes damages to organs). Nevertheless, according to CLP Regulation, in order to classify the mixtures when data are not available for the complete mixture, the bridging principles must be used: "*Where the mixture itself has not been tested to determine its specific target organ toxicity, but there are sufficient data on the individual ingredients and similar tested mixtures to adequately characterise the hazards of the mixture, these data shall be used in accordance with the bridging principles set out in section 1.1.3".* The Table 3.9.4 stablishes the generic concentration limits in CLP Regulation:

Table 3.9.4

Generic concentration limits of ingredients of a mixture classified as a specific target organ toxicant that trigger classification of the mixture

Ingredient classified as:	Generic concentration limits triggering classification of the mixture as:	
	Category 1	Category 2
Category 1 Specific Target Organ Toxicant	Concentration ≥ 10 %	1,0 % ≤ concentration < 10 %
Category 2 Specific Target Organ Toxicant		Concentration ≥ 10 % [(Note 1)]

The concentration to classify *Category 1 Specific Target Organ Toxicant* should be ≥ 10% but as the concentration of IPBC in the product is 0.3%, JC-CTP3 will not classify with this hazard statement.

Propiconazole is classified, among other, as Repr. Cat. 1B (H360D May damage the unborn child). Nevertheless, according to CLP Regulation, in order to classify the mixtures when data are not available for the complete mixture, the bridging principles must be used: "*the mixture shall be classified as a reproductive toxicant when at least one ingredient has been classified as a Category 1A, Category 1B or Category 2 reproductive toxicant and is present at or above the appropriate generic concentration limit as shown in Table 3.7.2 for Category 1A, Category 1B and Category 2 respectively*". The table 3.7.2 stablishes the generic concentration limits in CLP Regulation:

Table 3.7.2

Generic concentration limits of ingredients of a mixture classified as reproduction toxicants or for effects on or via lactation that trigger classification of the mixture

Ingredient classified as:	Generic concentration limits triggering classification of a mixture as:			
	Category 1 reproductive toxicant		Category 2 reproductive toxicant	Additional category for effects on or via lactation
	Category 1A	Category 1B		
Category 1A reproductive toxicant	≥ 0,3 % [Note 1]			
Category 1B reproductive toxicant		≥ 0,3 % [Note 1]		

Ingredient classified as:	Generic concentration limits triggering classification of a mixture as:			
	Category 1 reproductive toxicant		Category 2 reproductive toxicant	Additional category for effects on or via lactation
	Category 1A	Category 1B		
Category 2 reproductive toxicant			≥ 3,0 % [Note 1]	
Additional category for effects on or via lactation				≥ 0,3 % [Note 1]

Note:

The concentration limits in Table 3.7.2 apply to solids and liquids (w/w units) as well as gases (v/v units).

Note 1:

If a Category 1 or Category 2 reproductive toxicant or a substance classified for effects on or via lactation is present in the mixture as an ingredient at a concentration at or above 0,1 %, a SDS shall be available for the mixture upon request.

The concentration to classify *Category 1B reproductive toxicant* is ≥ 0.3% and the concentration of propiconazole in the product is 0.3%, JC-CTP3 classify with this hazard statement.

Low boiling point naphtha is included in the composition of the biocidal product. This substance can contain benzene, a constituent that is classified as a human carcinogen and a germ cell mutagen (please see Annex VI of CLP Regulation). This classification is not applicable if the concentration of benzene is lower than 0.1% (Note P of the CLP Regulation). In addition, this low boiling point naphtha can contain amounts of toluene and/or n-hexane, constituents that are classified as reprotoxicants. ES CA asked to the applicant about these impurities and an analytical certificated and a limit method of detection was sent. Applicant confirms that toluene, benzene and n-hexane are well below of 0.1% being the detection limit of 10mg/kg. this information is included in section 13 of IUCLID.

Endocrine disruption assessment

Assessment of the ED properties of the active substances:

The biocidal product contains Cypermethrin, Propiconazole, Tebuconazole and IPBC.

The CAR of cypermethrin indicate*: "The estrogenic potential of cypermethrin cis:trans/40:60 based on ER-mediated mechanisms remains equivocal. Contradictory results were revealed in different studies. In summary, the estrogenic and antiandrogenic effect of cypermethrin cis:trans/40:60 (and pyrethroids in general) depend on the assays or cells used. Results indicate that data obtained with high concentrations (> 10 µM) should be interpreted carefully (solubility of test chemical, cell toxicity). Possibly, cypermethrin cis:trans/40:60 is an oestrogen-like chemical that might act through signalling pathways other than direct ER binding, and as such, might function as an endocrine modulator. However, no definite conclusions can be drawn and there is no data available to the applicant or scientific evidence for endocrine disruption effect"*.

The CAR of propiconazole indicate: "*The dossier evaluated for this assessment report does not warrant conclusion of endocrine disruption potential for propiconazole. In the toxicity tests with mammals there were no effects in test animals which could be related to possible endocrine disruption. The literature review on endocrine disrupting mechanism of action (MoA) of propiconazole revealed that propiconazole has an endocrine MoA by interference of steroid hormone synthesis, however, the relevance of this remains unclear in the light of observed endocrine effects*".

In addition, the RAC opinion specify for propiconazole that "*a variety of studies on potentially endocrine disrupting effects have been published in the open scientific literature: impairments in serum testosterone levels, testes and foetus weight, anogenital distance, oestrus cyclicity and sperm quality, suggesting endocrine mediated effects. However, RAC also notes that such observations did not alter fertility in the 2-generation Guideline study,that the reported effects are reversible in some cases and finally, effects reported in individual studies were not further confirmed in others with similar approaches. Thus, RAC does not consider the effects reported in these studies to be consistent enough to warrant classification*".

Regarding the Tebuconazole, the CAR indicate: "*Tebuconazole or the metabolite 1,2,4 triazole are not included in the EU list of substances with evidence (Catefory 1) or potential endocrine disruption (Category 2) (COM (1999) 706). However, tebuconazole is included in table 4 (substances classified as HPV and/or persistent and/or exposure expected in humans and wildlife, with insufficient data). A number of studies investigating the endocrine effects of tebuconazole and other triazoles have been performed recently, e.g. Kjaerstad et al. (2010), Cericato et al. (2008), Sancho et al. (2010) showing some potential endocrine disrupting properties of tebuconazole and a number of other triazoles. However the interpretation of the results from these studies has not been fully agreed on but the results from these studies will be considered when criteria for endocrine disrupting substance are developed*."

For IPBC, the CAR indicate: "*IPBC is not included in the EU list of potential endocrine disruptors (COM DG ENV, 2000)*".

Therefore, the evaluation of endocrine disruptions properties should be reevaluated in the renewal of active substances.

Assessment of the ED properties of non-active substances (co-formulants):

Since 7 June 2018, date when the Regulation (EU) 2017/2100 came into force, endocrine disrupting assessment of co-formulants is mandatory according to the article 19. Pending a standardized procedure is made available at EU level, the following sources were considered to check the potential endocrine disrupting properties of the co-formulants contained in the biocidal product:

Substance identified as ED under the BPR:
https://circabc.europa.eu/w/browse/e379dc27-a2cc-46c2-8fbb-46c89d84b73d

Substance identified as ED under the PPPR:
https://ec.europa.eu/food/sites/food/files/pesticides_ppp_app-proc_cfs_database-201501.xlsx
ECHA Candidate List of substances of very high concern for Authorisation:
https://echa.europa.eu/candidate-list-table

ECHA's Endocrine disruptor assessment list
https://echa.europa.eu/ed-assessment

EU Community rolling action plan (CoRAP)
https://echa.europa.eu/information-on-chemicals/evaluation/community-rolling-action-plan/corap-table

After reviewing the potential ED properties of co-formulants (please refer to the Confidential Annex), one of the co-formulants is subject to an on-going evaluation or a decision regarding their ED properties. At this moment, the evaluation is carried out by FR CA and it is not finished. Based on the available information, ES CA considers that there is no concern regarding the ED properties of these co-formulants.

Overall conclusion on the biocidal product regarding ED properties:

Based on the existing knowledge and the data provided by the applicant, there is no indication of concern regarding the ED properties of the substances used in the biocidal product.

If one or several components are identified as having ED properties in the future, the conditions for granting the biocidal product authorisation will be revised.

2.2.6.2 Exposure assessment

As stated in toxicology section, the product JC-CTPI-3 is classified as Repr. Cat. 1B (H360D May damage the unborn child) due to the presence of propiconazol in concentration of 0.3%.

According to BPR Art 19.4.b[1] and taking into account Spanish definitions of non-professionals and professionals[2], the uses for these two categories of users have not been authorized for making available in the market.

Dermal absorption figures are available for all three active substances. However no dermal absoption test was performed with the biocidal product. Therefore, dermal absorption values from assessment of effects on human health of this product will be used for exposure assessment porposes:

Value(s) used in the Risk Assessment – Dermal absorption				
Substance	Cypermethrine	Tebuconazole	Propiconazole	IPBC
Value(s)*	75%	75%	75%	75%
Justification for the selected value(s)	Guidance on Dermal Absorption, EFSA Journal 2012;10(4):2665			

1 "A biocidal product shall not be authorised for making available on the market for use by the general public where it meets the criteria according to Regulation (EC) No 1272/2008 for classification as:
— toxic for reproduction category 1A or 1B;"

2 Professional users (NTP): professionals that use the biocidal products in the context of his profession, that is not pest control operator, and that are unlikely to have received any specific training in biocidal product use according to the national legislation in force. It can be expected that they have some knowledge and skills handling chemicals (if they must use it in their job) and they are able to use correctly some kind of PPE if necessary.

Non-professional users (NP): users who are not professionals and that apply the biocidal product is in his private life.

* No dermal absorption study on JC-CTPI-3 was submitted.

Data waiving	
Information requirement	Dermal absorption studies
Justification	A study of dermal absorption with the biocidal product was required by ES CA but the applicant justified the no submission of data because use the Guidance on Dermal Absorption, EFSA Journal 2012;10(4):2665. The applicant justifies the election of a default value of 75% following EFSA guidelines on dermal absorption because it is a ready to use product and the concentration of the active substances included in the composition is ≤ 5%. ES CA considers that the justification is acceptable and the default value of 75% is believed to represent a sufficient conservative approach for human exposure.

JC-CTPI-3 is a biocide wood preservative applied indoors and outdoors as preventive and curative treatements by industrial (trained professional) and trained-professional users. The product is intended to be applied by the application methods mentioned below:

Type	**User sector / operator**	**Application methods ***
Preventive	Industrial / trained professional	Automated spraying (s)
		Automated dipping (s)
		Double-vacuum (p)
Preventive and curative	Treatment *in situ* / trained professionals	Spraying (s)
		Brushing (s)
		Injection (p)

*(s) Superficial application process and (p) Penetrating application process in accordance with OECD Nº2 about Revised emission scenario Document for wood preservatives (2013).

The intended doses supported in this risk assessment for the different application methods are:
- *Superficial Curative application:* 300 ml of product per m2 of wood.
- *Superficial Preventive application:* 206 grams of product per m2 of wood.
- *Impregnation vacuum-pressure process:* 35 kg of product per m^3 of wood.

Identification of main paths of human exposure towards active substance(s) and substances of concern from its use in biocidal product

Summary table: relevant paths of human exposure							
Exposure path	**Primary (direct) exposure**			**Secondary (indirect) exposure**			
	Industrial use	**Trained Professional use**	**Non-professional use**	**Industrial use**	**Professional use**	**General public**	**Via food**
Inhalation	Yes	Yes	n.a.	n.a.	Yes	Yes	No
Dermal	Yes	Yes	n.a.	n.a.	Yes	Yes	No
Oral	No	No	n.a.	n.a.	No	Yes	No

List of scenarios

Summary table: scenarios			
Scenario number	**Scenario (e.g. mixing/ loading)**	**Primary or secondary exposure Description of scenario**	**Exposed group**
1.	Vacuum-pressure. (preventive)	Vacuum-pressure treatment takes place in sealed chambers without operator's presence. Therefore, operators are dermally exposed through contact with contaminated equipment surfaces and through handling wet treated wood at the beginning or the end of the cycle treatment or by accidental contact with treated wood. In all cases, dermal exposed will be always over a short period (during the few minutes at the start and the few minutes at the end of the impregnation cycle).	Industrial user
2.	Automated dipping process. (preventive)	After loading the product into vessels systems, the product may be applied to the freshly cut wood by two different methods. (1) Automated dipping process. (2) Fully automated dipping process.	Industrial user
3.	Automated spray application (preventive)	This task is intended to prevent the presence of woodworm and termite species in the wood. The spraying process is done by automated machines in hermetic closed tanks at indoor industrial premises without operator presence during the application.	Industrial user
4.	Spray application (preventive and curative)	Spraying application is performed by the operator on the wood surfaces by a handheld or knapsack sprayer, in absence of general public. Indoor application at premises like parquet, flooring, wood decor (plinths, friezes, baseboards) or carpentry (doors and windows) is considered a worse case for human exposure.	Trined-Professional
5.	Brushing (preventive and curative)	This scenario of exposure may be occurring when the trained-professional user applies the product over the wood by using a brush, in absence of general public.	Trained-professional
6.	Injection (preventive and curative)	The application by injection can be only applied by Trained-professional users as a preventive or curative treatment. The product is injected in the wood by means of a syringe, in absence of general public.	Trained-Professional
7.	Mixing and Loading	The fluid is delivered in a container and is decanted from containers that are manually handled. This task is done by professional where they are exposed during the mixing and loading operations during manual or automated addition.	Trained-professional
8.	Cutting and sanding	An adult who takes in contact with dry treated wood to move, cutting or sanding it.	Professional

9.	Cutting and sanding	An adult who takes in contact with dry treated wood to move, cutting or sanding it.	Non-professional
10.	Chewing wood off-cut	Toddler who takes a piece of treated wood and chews it. Therefore, this secondary exposure is foreseeable by ingestion.	General public
11.	Playing on weathered structure and mouthing	This scenario is considered for toddler who play on weathered structures. Secondary exposure is foreseeable by dermal and ingestion route.	General public
12.	Inhalation residues indoors	This scenario is considered for the General public that stays in a premise where the wood has been treated with the biocide product.	General public
13.	Laundering contaminated work clothing at home	This scenario assumes that the laundering is undertaken in a domestic, automatic washing machine.	General public
14.	Cleaning of brush equipment	Primary exposure scenario of an operator who is washing out of a brush which has been used to apply a conservative biocide.	Trained-professional

Primary (direct) Exposure

Industrial exposure

Three scenarios are considered for the exposure estimation during product application for industrial preventive treatment:

- Pressure process vacuum-pressure)
- Immersion / dipping (automated)
- Spray tunnels (automated)

Industrial processes are carried out in facilities with closed or confined areas made of materials resistant to the wood preservative product. Provisions are made for the collection, recycling and reuse of wood preservative collected from the conveyor or drip drying area. The release of wood preservatives from the treatment facility or from the places where treated wood is stored, into a surface water drain or a drain connected to a Wastewater Treatment Plant (STP) is not allowed.

Scenario [1]: **Vacuum-pressure (preventive)**

Description of Scenario [1]
Vacuum-pressure treatment takes place in sealed chambers without operator's presence. Therefore, operators are dermally exposed through contact with contaminated equipment surfaces and through handling wet treated wood at the beginning or the end of the cycle treatment or by accidental contact with treated wood. In all cases, dermal exposed will be always over a short period (during the few minutes at the start and the few minutes at

the end of the impregnation cycle). Following Recommendation 6 - Methods and models – version 4, Handling model 1 form TNsG 2002 User Guidance - Version 1 is carried out.		
	Parameters	Value
Tier 1	Hand exposure[1]	260 mg/cycle (inside gloves) 88.8 mg/cycle (75thpercentile TNsG 2002)
	Body exposure[1]	158 mg/cycle
	Inhalation[1]	0.6 mg/m3
	Duration[1]	3 cycles, 30 min.
	Dermal absorption	75%
	Body weight[2]	60kg
	Inhalation rate[2]	1.25m^3/h
Tier 2	a) Coverall Permeation [3]	5%
	b) Mask P3 Permeation[4]	2.5%
Tier 3	Hand exposure new gloves for each work shift[5]	130 mg/cycle (inside new gloves)

[1] Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure
[2] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products
[3] HEEG Opinion 9 Default protection factors for protective clothing and gloves. Impermeable coveralls.
[4] EN 529-2005
[5] HEEG Opinion no 9

Calculations for Scenario [1]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from double vacuum						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Scenario [1] Vacuum-pressure	1	cypermethrin	6,56E-04	1,65E+00	1,65E+00	2,74E-02
		tebuconazol	1,13E-03	2,82E+00	2,82E+00	4,70E-02
		propiconazol	1,13E-03	2,82E+00	2,82E+00	4,70E-02
		IPBC	1,13E-03	2,82E+00	2,82E+00	4,70E-02
Scenario [1] Vacuum-pressure	2a	cypermethrin	6,56E-04	1,05E+00	1,05E+00	1,76E-02
		tebuconazol	1,13E-03	1,81E+00	1,81E+00	3,02E-02
		propiconazol	1,13E-03	1,81E+00	1,81E+00	3,02E-02
		IPBC	1,13E-03	1,81E+00	1,81E+00	3,02E-02
Scenario	2b	cypermethrin	1,64E-05	1,05E+00	1,05E+00	1,76E-02

[1] Vacuum-pressure		tebuconazol	2,81E-05	1,81E+00	1,81E+00	3,01E-02
		propiconazol	2,81E-05	1,81E+00	1,81E+00	3,01E-02
		IPBC	2,81E-05	1,81E+00	1,81E+00	3,01E-02
Scenario [1] Vacuum-pressure	3	cypermethrin	1,64E-05	5,43E-01	5,43E-01	9,05E-03
		tebuconazol	2,81E-05	9,31E-01	9,31E-01	1,55E-02
		propiconazol	2,81E-05	9,31E-01	9,31E-01	1,55E-02
		IPBC	2,81E-05	9,31E-01	9,31E-01	1,55E-02

Scenario [2]: **automated dipping**

Description of Scenario [2]		
HEEG opinion 8 (2009) is applied for exposure assessment. Automated dipping includes the following operations: an operator using a fork-lift truck or similar equipment lowers the wood into the dipping tank or transfers the wood to a bathing tray. The wood stays in the wood preservative for a few minutes or for a few hours before being lifted out of the tank by the fork-lift truck (or similar). The wood is then transferred by the fork-lift truck (or similar) to a storage area where it is placed to dry. For duration a default value of 60 minutes was used, by 4 cycles per day. Handling Model 1 for dermal exposure is used. Negligible inhalatory exposure to aerosols is assumed. According to the HEEG opinion 8 - Defaults and appropriate models to assess human exposure for dipping processes (PT 8), inhalation exposure resulting from aerosol formation should be negligible. According to the HEEG OPINION 18 - For exposure assessment for professional operators undertaking industrial treatment of wood by fully automated dipping where all steps in the treatment and drying process are mechanised and no manual handling takes place the dermal exposure is assumed to decrease by a factor of 4.		
	Parameters	Value
Tier 1	Hand exposure[1]	260 mg/cycle (inside gloves)
	Body exposure[1]	158 mg/cycle
	Inhalation[1]	0.6 mg/m3
	Duration[2]	4 cycles
	Dermal absortion	75%
	Body weight[3]	60kg
	Inhalation rate[3]	1.25m^3/h
Tier 2	Coverall Permeation[4]	5%
Tier3	Decrese factor dermal exposure fully automated dipping[5]	4

[1] Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure

[2] HEEG opinion 8 - Defaults and appropriate models to assess human exposure for dipping processes (PT 8)

[3] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[4] HEEG Opinion 9 Default protection factors for protective clothing and gloves. Impermeable coveralls.

[5] HEEG OPINION 18 For exposure assessment for professional operators undertaking industrial treatment of wood by fully automated dipping

Calculations for Scenario [2]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from automated dipping						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Automated dipping	1	cypermethrin	5,25E-03	2,19E+00	2,20E+00	3,66E-02
		tebuconazol	9,00E-03	3,76E+00	3,77E+00	6,28E-02
		propiconazol	9,00E-03	3,76E+00	3,77E+00	6,28E-02
		IPBC	9,00E-03	3,76E+00	3,77E+00	6,28E-02
Automated dipping	2	cypermethrin	5,25E-03	1,41E+00	1,42E+00	2,36E-02
		tebuconazol	9,00E-03	2,41E+00	2,42E+00	4,03E-02
		propiconazol	9,00E-03	2,41E+00	2,42E+00	4,03E-02
		IPBC	9,00E-03	2,41E+00	2,42E+00	4,03E-02
Fully Automated dipping	3	cypermethrin	1,31E-03	3,52E-01	3,53E-01	5,89E-03
		tebuconazol	2,25E-03	6,03E-01	6,05E-01	1,01E-02
		propiconazol	2,25E-03	6,03E-01	6,05E-01	1,01E-02
		IPBC	2,25E-03	6,03E-01	6,05E-01	1,01E-02

Scenario [3]: **Industrial automated spraying**

Description of Scenario [3]
Industrial automated spraying scenario, as requested for the applicant, includes the following operations: an operator using a fork-lift truck (or similar) equipment lowers the wood into the spraying tank. Spraying process is carried out by automated machines in hermetic closed tanks without operator presence during the application. Wood is lifted out of the tank by the fork-lift truck (or similar). The wood is then transferred by the fork-lift truck (or similar) to a storage area where it is placed to dry. Reading accross from HEEG opinion 8 – (Defaults and appropriate models to assess human exposure for dipping processes), dermal exposure pattern of automated spraying is comparable to that of automated dipping process. Based on this assumption the appropriate model to assess the automated spraying process is Handling model 1. This

model is used to assess the profesional intermittently handling water-wet or solvent-damp wood and associated equipment after vacuum pressure processes (p. 26 of User Guidance, 2002). For application a default value of 60 minutes was used, by 2 cycles per day.		
	Parameters	Value
Tier 1	Hand exposure[1]	260 mg/cycle (inside gloves)
	Body exposure[1]	158 mg/cycle
	Inhalation[1]	0.6 mg/m3
	Duration[2]	2 cycles
	Dermal absortion	75%
	Body weight[3]	60kg
	Inhalation rate[3]	1.25m^3/h
Tier 2	Coverall Permeation [4]	5%
Tier 3	Mask P3 Permeation[5]	2.5%
Tier4	Hand exposure new gloves for each work shift[6]	130 mg/cycle (inside new gloves)

[1] Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure

[2] HEEG opinion 8 - Defaults and appropriate models to assess human exposure for dipping processes (PT 8)

[3] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[4] HEEG Opinion 9 Default protection factors for protective clothing and gloves. Impermeable coveralls.

[5] EN 529-2005

[6] HEEG Opinion 9 Default protection factors for protective clothing and gloves. Impermeable coveralls

Calculations for Scenario [3]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from automated dipping						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Automated spraying	1	cypermethrin	4,38E-04	1,10E+00	1,10E+00	1,83E-02
		tebuconazol	7,50E-04	1,88E+00	1,88E+00	3,13E-02
		propiconazol	7,50E-04	1,88E+00	1,88E+00	3,13E-02
		IPBC	7,50E-04	1,88E+00	1,88E+00	3,13E-02
Automated	2	cypermethrin	4,38E-04	7,03E-01	7,03E-01	1,17E-02

spraying		tebuconazol	7,50E-04	1,21E+00	1,21E+00	2,02E-02
		propiconazol	7,50E-04	1,21E+00	1,21E+00	2,02E-02
		IPBC	7,50E-04	1,21E+00	1,21E+00	2,02E-02
Automated spraying	3	cypermethrin	1,09E-05	7,03E-01	7,03E-01	1,17E-02
		tebuconazol	1,88E-05	1,21E+00	1,21E+00	2,02E-02
		propiconazol	1,88E-05	1,21E+00	1,21E+00	2,02E-02
		IPBC	1,88E-05	1,21E+00	1,21E+00	2,02E-02
Automated spraying	4	cypermethrin	1,09E-05	3,62E-01	3,62E-01	6,03E-03
		tebuconazol	1,88E-05	6,21E-01	6,21E-01	1,04E-02
		propiconazol	1,88E-05	6,21E-01	6,21E-01	1,04E-02
		IPBC	1,88E-05	6,21E-01	6,21E-01	1,04E-02

Trained-Professional exposure

For ***in-situ treatments by professional***, JC-CTPI-3 is intended to be used for preventive and curative treatment through the following methods:

- Spraying
- Brushing
- Injection

Indoor applications have been considered as the worst-case situations for human exposure and the risk derived from these indoor uses cover the human risk under outdoor conditions.

Scenario [4]: **Trained-professioinal spraying**

Description of Scenario [4]		
Spraying application is performed by the operator on the wood surfaces by a handheld or knapsack sprayer in absence of general public. Indoor application at premises like parquet, flooring, wood decor (plinths, friezes, baseboards) or carpentry (doors and windows) is considered a worse case for human exposure.. This task is developed for preventive or curative treatments. Following the Biocides Human Health Exposure Methodology, to evaluate the operator exposure for the application method for trained-professionals, spraying model 2 of TNsG 2002, Part 2, has been chosen as the most similar scenario. This model is evaluated for indoor treatments which is considered worst-case scenario for human risk compared to outdoor use. The model includes the tasks for "mixing and loading" and "spray application" at a pressure from 4 to 7 bar.		
	Parameters	Value
Tier 1	Hands exposure[1]	273 (mg/min)
	Body exposure[1]	222 (mg/min)

	Inhalation[1]	76 (mg/m3)
	Duration[1]	80 minutes (by two events of 40 minutes) without distinction between the M&L and application phases.
	Dermal absortion	75%
	Body weight[2]	60kg
	Inhalation rate[2]	1.25m^3/h
Tier 2	Hands exposure[1] (inside gloves)	7.8 (mg/min)
Tier 3	Coverall Permeation[3]	5%
Tier4	Mask P3 Permeation[4]	2.5%

[1] Biocides Human Health Exposure Methodology

[2] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[3] HEEG Opinion 9 Default protection factors for protective clothing and gloves. Impermeable coveralls.

[5] EN 529-2005

Calculations for Scenario [4]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Spraying						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Spraying	1	cypermethrin	2,22E-01	5,20E+01	5,22E+01	8,70E-01
		tebuconazol	3,80E-01	8,91E+01	8,95E+01	1,49E+00
		propiconazol	3,80E-01	8,91E+01	8,95E+01	1,49E+00
		IPBC	3,80E-01	8,91E+01	8,95E+01	1,49E+00
Spraying	2	cypermethrin	2,22E-01	2,41E+01	2,43E+01	4,05E-01
		tebuconazol	3,80E-01	4,14E+01	4,18E+01	6,96E-01
		propiconazol	3,80E-01	4,14E+01	4,18E+01	6,96E-01
		IPBC	3,80E-01	4,14E+01	4,18E+01	6,96E-01
Spraying	3	cypermethrin	2,22E-01	1,98E+00	2,20E+00	3,67E-02
		tebuconazol	3,80E-01	3,40E+00	3,78E+00	6,30E-02
		propiconazol	3,80E-01	3,40E+00	3,78E+00	6,30E-02
		IPBC	3,80E-01	3,40E+00	3,78E+00	6,30E-02
Spraying	4	cypermethrin	5,54E-03	1,98E+00	1,99E+00	3,31E-02

		tebuconazol	9,50E-03	3,40E+00	3,41E+00	5,68E-02
		propiconazol	9,50E-03	3,40E+00	3,41E+00	5,68E-02
		IPBC	9,50E-03	3,40E+00	3,41E+00	5,68E-02

Scenario [5]: **Trained-professional brushing**

Description of Scenario [5]		
In Trained-professioinal brushing scenario the user applies the product over the wood by using a brush in absence of general public. This task is developed for preventive or curative treatments. According to Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure, following values are used in exposure assessment:		
	Parameters	Value
Tier 1	Hands exposure[1]	0.5417 (mg/m^2)
	Body exposure[1]	0.2382 (mg/m^2)
	Inhalation[1] non-volatile compounds	0.0016 (mg/m^2)
	Duration[1]	240 min
	Application area[1]	31.6 m^2
	Dermal absortion	75%
	Body weight[2]	60kg
	Inhalation rate[2]	1.25m^3/h
Tier 2	Gloves permeation[3]	10%
	Coverall Permeation[3]	10%

[1] Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure and Biocides Human Health Exposure Methodology

[2] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[3] HEEG Opinion 9 Default protection factors for protective clothing and gloves. Coated coveralls.

Calculations for Scenario [5]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Brushing						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kgbw/d**
Brushing	1	cypermethrin	8,85E-03	3,23E+00	3,24E+00	5,40E-02
		tebuconazol	1,52E-02	5,55E+00	5,57E+00	9,28E-02

		propiconazol	1,52E-02	5,55E+00	5,57E+00	9,28E-02
		IPBC	1,52E-02	5,55E+00	5,57E+00	9,28E-02
Brushing	2	cypermethrin	8,85E-03	3,23E-01	3,32E-01	5,53E-03
		tebuconazol	1,52E-02	5,55E-01	5,70E-01	9,50E-03
		propiconazol	1,52E-02	5,55E-01	5,70E-01	9,50E-03
		IPBC	1,52E-02	5,55E-01	5,70E-01	9,50E-03

Scenario [6]: **Trained-professional Injection**

Description of Scenario [6]

Injection scenario, as requested for the applicant, includes the following operations:

1. The product is applied in beams with a section greater than 15cm.
2. Drill holes of 9 mm in staggered length every 40 cm and up to 2/3 of the thickness of the piece of woodwork (for example a beam).
3. Place an anti-return injection nozzle, one direction, in each hole. For this use a nylon hammer. Only the injection lug should be visible.
4. Insert the injector of the gun on the nipple of the nozzle. The product of the treatment is pumped directly from the drum by the electric pump.
5. Saturate with product.
6. Uncouple the injection gun

According to Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure, proposed model 30 to assess primary exposure to PT8 for professional borehole pressure impregnation application including mixing and loading (Subsoil treatment Model 2) has been used with parameters showed in the following table:

	Parameters	Value
Tier 1	Hand exposure[1]	8 mg/min (inside gloves)
	Inhalation non-volatile compounds[1]	0.57 mg/m3
	Duration[1]	80 min
	Dermal absortion	75%
	Body weight[2]	60kg
	Inhalation rate[2]	1.25m^3/h
Tier 2	Mask P3 Permeation[3]	2.5%

[1] Recommendation no. 6 of the BPC Ad hoc Working Group on Human Exposure

[2] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[3] EN 529-2005

Calculations for Scenario [6]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Injection

Exposure scenario	Tier/PPE	Active substance	Estimated inhalation uptake	Estimated dermal uptake	Estimated total uptake	Estimated systemic total uptake mg/kg bw/d
Injection	1	cypermethrin	1,66E-03	8,40E-01	8,40E-01	1,40E-02
		tebuconazol	2,85E-03	1,44E+00	1,44E+00	2,40E-02
		propiconazol	2,85E-03	1,44E+00	1,44E+00	2,40E-02
		IPBC	2,85E-03	1,44E+00	1,44E+00	2,40E-02
Injection	2	cypermethrin	6,93E-07	8,40E-01	8,40E-01	1,40E-02
		tebuconazol	1,19E-06	1,44E+00	1,44E+00	2,40E-02
		propiconazol	1,19E-06	1,44E+00	1,44E+00	2,40E-02
		IPBC	1,19E-06	1,44E+00	1,44E+00	2,40E-02

Scenario [7]: **Trained-professional Mixing and Loading**

Description of Scenario [7]		
The fluid is delivered in a container and is decanted from containers that are manually handled. This task is done by trained-professionals where they are exposed during the mixing and loading operations during manual or automated addition. According to HEEG Opinion 1, on the use of available data and models for the assessment of the exposure of operators during the loading of products into vessels or systems in industrial scale, Mixing & loading model 7-TNsG part 2 p.142 (corrected), has been used to calculate the exposure due to liquid manual loading/pouring application for this scenario.		
	Parameters	Value
Tier 1	Dermal exposure under clothes and gloves[1]	1.01 mg/min
	Inhalation exposure[1]	0.94 mg/m3
	Duration[1]	10 min
	Dermal absortion	75%
	Body weight[2]	60kg
	Inhalation rate[2]	1.25m^3/h

[1] HEEG opinion 1 on the use of available data and models for the assessment of the exposure of operators during the loading of products into vessels or systems in industrial scale.

[2] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

Calculations for Scenario [7]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Mixing and Loading						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw7d**
Mixing and Loading	1	cypermethrin	3,43E-04	1,33E-02	1,36E-02	2,27E-04
		tebuconazol	5,88E-04	2,27E-02	2,33E-02	3,88E-04
		propiconazol	5,88E-04	2,27E-02	2,33E-02	3,88E-04
		IPBC	5,88E-04	2,27E-02	2,33E-02	3,88E-04

Scenario [8]: **Wash out of brushes**

Description of Scenario 8		
A post-application task which may lead to some degree of exposure is cleaning the brush used to apply the product. Brush cleaning by professionals can be expected to last for no more than 15 minutes and might result in some exposure to hands. To calculate the exposure due to whashing out brushes, the HEEG opinion 11 and its computerised calculator have been used. Cleaning the brush used for applying paint may be done by repeated dipping and swilling it in a vessel containing an appropriate solvent. A large brush might have a size of 10 x 10 x 2 cm, corresponding to a volume of 200 ml. It is assumed that after painting one eighth (1/8) of the brush volume is paint. Cleaning is assumed to be done in three steps, each time using fresh solvent. The volume at each step should be large enough to allow a sufficient dilution of the residues in the brush. For a brush having a volume of 200 ml the volume of the cleaning solvent would be at least 400 ml per step. Each washing step is assumed to result in an approximately 10-fold dilution of the residues in the brush (i.e. 10 % of the paint originally on the brush remains after one washing). After each step the brush is assumed to be squeezed by the hand to get rid of as much solvent as possible. It is assumed that with this step 50% of the solution in the washed brush is released and may potentially contaminate the hand. However, it is further assumed that the squeezing is not done by the bare hand but rather by wrapping it first with a cleaning rag, which absorbs 90% of the released liquid. It is assumed the brush is washed and squeezed for a maximum of 3 times. During brush cleaning, professionals may retain gloves worn during brush application of the product (Tier 2 assessment). No exposure of areas of the body other than the hands is assumed to occur; and exposure via inhalation is considered negligible.		
	Parameters	Value
Tier 1	Body weight[2]	60 kg
	Brush size	200 mL
	Volume of residual solution in brush	1/8 of brush volume = 25 mL
	Volume of each washing solution[1]	400 mL
	Remaining residues in brush after each	10%

	washing step[1]	
	Remaining residues in brush after each squeezing[1]	50%
	Penetration through cleaning cloth during squeezing[1]	10%
	Dermal absorption, IPBC	75 %
Tier 2	Gloves	90% protection

[1] HEEG opinion 11 - Exposure model Primary exposure scenario – washing out of a brush which has been used to apply a paint (TM III 2010)

[2] HEAdhoc Recommendation no. 14 - Default human factor values for use in exposure assessments for biocidal products (HH WG III, 2017)

Calculations for Scenario [8]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Washing out brushes						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Washing out brushes	1	cypermethrin	-	1,38E-01	1,38E-01	2,29E-03
		tebuconazol	-	2,36E-01	2,36E-01	3,93E-03
		propiconazol	-	2,36E-01	2,36E-01	3,93E-03
		IPBC	-	2,36E-01	2,36E-01	3,93E-03
Washing out brushes	2	cypermethrin	-	1,38E-02	1,38E-02	2,29E-04
		tebuconazol	-	2,36E-02	2,36E-02	3,93E-04
		propiconazol	-	2,36E-02	2,36E-02	3,93E-04
		IPBC	-	2,36E-02	2,36E-02	3,93E-04

Combined scenarios

Combined exposures by same active substance by different tasks may occur. For this assessment, mixing and loading and brushing for trained professionals were combined for each active substance.

Combined Scenarios M&L/Brushing/Washing brushes	

Combined Scenarios	Tier	Active substance	Systemic Exposure Scnario (5) mg/kg bw/d	Systemic Exposure Scnario (7) mg/kg bw/d	Systemic exposure scanario (8) mg/kg bw/d	Systemic exposure scanarios (5)+(7)+(8) mg/kg bw/d
Brushing (5) + M&L (7) + Washing brushes (8)	(5)Tier1 + (7) Tier1 + (8) Tier1	cypermethrin	5,40E-02	2,27E-04	2,29E-03	5,65E-02
		tebuconazol	9,28E-02	3,88E-04	3,93E-03	9,71E-02
		propiconazol	9,28E-02	3,88E-04	3,93E-03	9,71E-02
		IPBC	9,28E-02	3,88E-04	3,93E-03	9,71E-02
	(5)Tier2 + (7) Tier1 + (8) Tier1	cypermethrin	5,53E-03	2,27E-04	2,29E-03	8,05E-03
		tebuconazol	9,50E-03	3,88E-04	3,93E-03	1,38E-02
		propiconazol	9,50E-03	3,88E-04	3,93E-03	1,38E-02
		IPBC	9,50E-03	3,88E-04	3,93E-03	1,38E-02
	(5)Tier2 + (7) Tier1 + (8) Tier2	cypermethrin	5,53E-03	2,27E-04	2,29E-04	5,99E-03
		tebuconazol	9,50E-03	3,88E-04	3,93E-04	1,03E-02
		propiconazol	9,50E-03	3,88E-04	3,93E-04	1,03E-02
		IPBC	9,50E-03	3,88E-04	3,93E-04	1,03E-02

Secondary (indirect) Exposure

Professionals and Non-professionals exposure

Considering the human secondary exposure to PT08, the TNsG (2002) makes a distinction between scenarios for preventive and curative products and establish the following classification:

Reference Scenarios for Preventive Products:	Acute phase reference scenarios: - Adult - cutting and sanding treated wood (non-professional) - Infant - chewing wood off-cut Chronic phase reference scenarios: - Adult - cutting and sanding treated wood (professional) - Adult - inhalation of volatilised residues indoors - Adult - laundering work clothes at home - Child - playing on playground structure outdoors - Infant - playing on weathered structure and mouthing
Reference Scenarios for Curative Products:	Acute phase reference scenarios: - Not relevant Chronic phase reference scenarios: - Adult/infant - inhalation of volatilized residues indoors. - Adult - laundering work clothes at home

Scenario [9]: **Professional sanding treated wood. Curative**

Description of Scenario [9]		
The scenario is described in the TNsG on Human Exposure to Biocidal Products Part 3, p50-51 as revised by User Guidance version 1 p50-54 (EC, 2002a).		
	Parameters	Value
Tier 1	Volume of wood to be sanded in 1h	4,00E+03 cm^3
	Rate of product absorbed in wood (2l/4m^2)	5 mg/cm^2
	Product density	1 g/ml
	Wood density	0.4 g/ml
	Dust concentration in air (occupational exposure limit for wood dust)	5 mg/m^3
	Inhalation rate[2]	1.25 m^3/h
	Exposure duration	6 h
	Body weight[2]	60 kg
	Percentage dislodgeable[3]	2%
	Hand surface[2]	420 cm^2
	Transfer to hands	20%

[1] TNsG on Human Exposure to Biocidal Products Part 3, p50-51 as revised by User Guidance version 1 p50-54 (EC, 2002a)

[2]HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[3] *Biocides Human Health Exposure Methodology* 2015, p. 181.

Calculations for Scenario [9]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Professional sanding treated wood. Curative						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw7d**
Professional sanding treated wood. Curative	Tier 1	cypermethrin	4,02E-03	5,36E-02	5,76E-02	9,60E-04
		tebuconazol	6,89E-03	9,19E-02	9,88E-02	1,65E-03
		propiconazol	6,89E-03	9,19E-02	9,88E-02	1,65E-03
		IPBC	6,89E-03	9,19E-02	9,88E-02	1,65E-03

Scenario [10]: **Non-Professional sanding treated wood. Curative**

Description of Scenario [9]

The scenario is described in the TNsG on Human Exposure to Biocidal Products Part 3, p50-51 as revised by User Guidance version 1 p50-54 (EC, 2002a).		
	Parameters	Value
Tier 1	Volume of wood to be sanded in 1h	4,00E+03 cm^3
	Rate of product absorbed in wood (2l/4m^2)	5 mg/cm^2
	Product density	1 g/ml
	Wood density	0.4 g/ml
	Dust concentration in air (occupational exposure limit for wood dust)	5 mg/m^3
	Inhalation rate[2]	1.25 m^3/h
	Exposure duration	1 h
	Body weight[2]	60 kg
	Percentage dislodgeable[3]	2%
	Hand surface[2]	420 cm^2
	Transfer to hands	20%

[1] TNsG on Human Exposure to Biocidal Products Part 3, p50-51 as revised by User Guidance version 1 p50-54 (EC, 2002a)

[2]HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

[3] *Biocides Human Health Exposure Methodology* 2015, p. 181.

Calculations for Scenario [10]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Non-Professional sanding treated wood. Curative						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw7d**
Non-Professional sanding treated wood. Curative	Tier 1	cypermethrin	6,70E-04	5,36E-02	5,76E-02	9,04E-04
		tebuconazol	1,15E-03	9,19E-02	9,88E-02	1,55E-03
		propiconazol	1,15E-03	9,19E-02	9,88E-02	1,55E-03
		IPBC	1,15E-03	9,19E-02	9,88E-02	1,55E-03

Scenario [11] **Toddler chewing treated wood chip.**

This scenario has been divided in two sub-scenarios depending on the treatement applied on wood (curative or preventive).

Scenario [11a] **Toddler chewing treated wood chip. Curative**

Description of Scenario [11a]		
According to TNsG on Human Exposure to Biocidal Products Part 3, p42 as revised by User Guidance version 1 p50-54 (EC, 2002a).		
	Parameters	Value
Tier 1	Application rate	300 ml/m^2 24.3mg/cm^2
	Extraction by chewing[1]	10%
	Size of wood composites chip[1]	16cm^3
	Surface of wood composite chip treated[1]	16cm^2
	Cypermetrin oral absorption	57%
	Rest od active substances oral absortion	100%
	Body weight[2]	10 kg

[1] TNsG on Human Exposure to Biocidal Products Part 3, p42 as revised by User Guidance version 1 p50-54 (EC, 2002a

[2]HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

Calculations for Scenario [11a]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Toddler chewing treated wood chip. Curative.						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated oral uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw7d**
Toddler chewing wood chip Curative	Tier 1	cypermethrin	3,88E-02		3,88E-02	3,88E-03
		tebuconazol	1,17E-01		1,17E-01	1,17E-02
		propiconazol	1,17E-01		1,17E-01	1,17E-02
		IPBC	1,17E-01		1,17E-01	1,17E-02

Scenario [11b] **Toddler chewing treated wood chip. Preventive.**

Description of Scenario [11b]		
According to TNsG on Human Exposure to Biocidal Products Part 3, p42 as revised by User Guidance version 1 p50-54 (EC, 2002a).		
	Parameters	Value
Tier 1	Application rate	200 ml/m^2

		16.2 mg/cm^2
	Extraction by chewing[1]	10%
	Size of wood composites chip[1]	16cm^3
	Surface of wood composite chip treated[1]	16cm^2
	Cypermetrin oral absorption	57%
	Rest od active substances oral absortion	100%
	Body weight[2]	10 kg

[1] TNsG on Human Exposure to Biocidal Products Part 3, p42 as revised by User Guidance version 1 p50-54 (EC, 2002a

[2]HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

Calculations for Scenario [11b]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Toddler chewing wood chip Preventive						
Exposure scenario	**Tier/PPE**	**Active substance**	**Estimated oral uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Toddler chewing wood chip Preventive	Tier 1	cypermethrin	2,59E-02		2,59E-02	2,59E-03
		tebuconazol	7,78E-02		7,78E-02	7,78E-03
		propiconazol	7,78E-02		7,78E-02	7,78E-03
		IPBC	7,78E-02		7,78E-02	7,78E-03

Scenario [12] **Toddler playing and mouthing on playground weathered wood structure outdoors**

This scenario has been divided in two sub-scenarios depending on the treatement applied on wood:

- Preventive
- Curative

Description of Scenario [12a] Toddler playing and mouthing on playground weathered wood structure outdoors. Preventive		
Scenario developed according to TNsG on Human Exposure to Biocidal Products Part 3, pg 51 (EC, 2002a).		
Tier 1	Parameters[1]	Value
	Application rate	200 ml/m^2

	Contact surface (hands)[2]	2,31E+02 cm^2
	Hands Contaminated area (%)[1]	20%
	Dislogeable fraction (%)[1]	2%
	Dermal absorption	75%
	Wood surface area mouthing[1]	50cm^2
	Extraction by chewing[1]	10%
	Cypermetrin oral absorption	57%
	Rest of active substances oral absorption	100%
	Body weight[2]	10 kg

[1] TNsG on Human Exposure to Biocidal Products Part 3, p51.

[2]HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

Calculations for Scenario [12a]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from toddler playing and mouthing on playground weathered wood structure outdoors. Preventive/acute					
Exposure scenario	**Active substance**	**Estimated oral uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Toddler playing and mouthing on playground weathered wood structure outdoors	cypermethrin	8,08E-02	1,97E-02	1,00E-01	1,00E-02
	tebuconazol	2,43E-01	3,37E-02	2,77E-01	2,77E-02
	propiconazol	2,43E-01	3,37E-02	2,77E-01	2,77E-02
	IPBC	2,43E-01	3,37E-02	2,77E-01	2,77E-02

Description of Scenario [12b] Toddler playing and mouthing on playground weathered wood structure outdoors. Curative		
Scenario developed according to TNsG on Human Exposure to Biocidal Products Part 3, pg 51 (EC, 2002a).		
Tier 1	Parameters[1]	Value
	Application rate	300 ml/m^2
	Contact surface (hands)[2]	2,31E+02 cm^2
	Hands Contaminated area (%)[1]	20%
	Dislogeable fraction (%)[1]	2%
	Dermal absorption	75%

	Extraction by chewing[1]	10%
	Cypermetrin oral absorption	57%
	Rest od active substances oral absortion	100%
	Body weight[2]	10 kg

[1] TNsG on Human Exposure to Biocidal Products Part 3, p51.

[2] HEAdhoc Recommendation no. 14 Default human factor values for use in exposure assessment for biocidal products

Calculations for Scenario [12b]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from toddler playing and mouthing on playground weathered wood structure outdoors. Preventive/acute					
Exposure scenario	**Active substance**	**Estimated oral uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Toddler playing and mouthing on playground weathered wood structure outdoors, Curative chronic	cypermethrin	1,21E-02	2,95E-02	1,51E-01	1,51E-02
	tebuconazol	3,65E-02	5,06E-02	4,15E-01	4,15E-02
	propiconazol	3,65E-02	5,06E-02	4,15E-01	4,15E-02
	IPBC	3,65E-02	5,06E-02	4,15E-01	4,15E-02

Scenario [13]: **General public - Inhalation volatilased residues indoors**

This scenario is considered for the General public that stays in a premise where the wood has been treated with the biocide product.

Description of Scenario [13]
The exposure assessment due to this scenario has been carried out according to HEEG Opinion 13. As a Tier-1 screening tool whether inhalation exposure can be neglected or should be included into the risk assessment, the following screening test which is based on the toddler representing the worst case is proposed for each active substance: Let mw and vp denote the molecular weight (in g/mol) and the vapour pressure (in Pa).For toddler (based on an inhalation rate of 8 m^3/24 hr and bw of 10 kg) and using an AEL in mg a.s./kg bw/d, if $$0.328 \frac{mw\ vp}{AEL_{long\text{-}term}} \leq 1$$ then risk from inhalation exposure for the toddler is negligible, otherwise inhalation exposure should be included in the risk assessment. If the inhalation risk for the toddler is negligible then the inhalation risk for the infant, child and

for the adult can also beconsidered to be negligible.

For the product, there are four active substances:

Active substance	Vapour pressure a.s.	Molecular weight a.s.	AEL long term (mg a.s./kg/bw/d)	Constant	Result	Negligible / Included
Cypermethrin	2,30E-07	416,3	0,022	0,328	1,43E-03	negligible
Tebuconazol	1,70E-06	307,8	0,03	0,328	5,72E-03	negligible
Propiconazol	5,60E-05	342,2	0,08	0,328	7,86E-02	negligible
IPBC	4,50E-03	281,1	0,2	0,328	2,07E+00	**included**

Based on the results table above, the inhalation exposure of IPBC should be included in the risk assessment.

	Parameters		Value
Tier 1	IPBC	Vapour pressure a.s.	4,50E-03 Pa
		Molecular weight a.s.	281,1 g/mol
	Constante de gases[1]		8,31451 J mol^{-1} K^{-1}
	Temperatura[1] (K)		298 K
	Inhalation rate[1]		8 m^3/24 h
	Body weight[1]		10 Kg

[1] HEEG opinion 13 on Assessment of Inhalation Exposure of Volatilised Biocide Active Substance)

Calculations for Scenario [13]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Inhalation volatilased residues indoors					
Exposure scenario	**Active substance**	**Estimated inhalation uptake**	**Estimated dermal uptake**	**Estimated total uptake**	**Estimated systemic total uptake mg/kg bw/d**
Inhalation volatilased residues indoors	IPBC	4,08E-02		4,08E-02	4,08E-03

Scenario [14]: Laundering of brushing work clothes

Description of Scenario 14
Exposure to JC-CTPI-3 can occur when washing contaminated work clothes. Persons at risk are adults trained-professionals. The exposure is considered acute intermediary, as it does not occur on a daily basis but may be longer-term. In general, this approach assumes that the washing is carried out in a domestic automatic washing machine, therefore, the exposure will be dermally through the hands, from handling the contaminated clothes before and during the introduction of the clothes

in the washing machine. Laundering is considered to be after a five day work week, hence the total amount of product on work clothes is assumed to be five times the daily contamination associated with the application method used and it is assumed that the clothing to be washed is a coverall worn by a trained professional. The contamination of the coveralls is based on the trained professional brushing scenario from which the tier that shows safe use is tier 2.

Indicative value from model	mg/m^2	0,238200
Applicatio area *	m^2/day	31,6
potential dermal deposit	mg/day	7,53
clothing penetration from model	%	100%
actual dermal product deposit	mg/day	7,53
clothing penetration from model	%	10%
product under coverall	mg/day	0,75
product on coverall	**mg/day**	**6,77**

The sum transfer area is determined by estimating how many times the coverall is touched by the hands while preparing it for laundering. As a first tier, it is assumed that this happens three times, twice with the palms of both hands and once with the total hands surface, the sum transfer area is 1640 cm2. As a worst-case assumption, 50% of the residues in the touched area is transferred to the skin (transfer coefficient). The scenario is modelled after the CAR for Propiconazole in PT8 (FI CA, 2007).

	Parameter	**Value**
Tier 1	Clothing contamination from brushing[1]	6.77 mag/day
	Days before washing	5 days
	Percentage dislodgeable (transfer coefficient)[2]	30%
	Surface of medium coated coverall[2]	22700 cm^2
	Sum transfer area[3]	1640 cm^2

[1] Clothing contamination equals the highest potential body exposure (Scanario 5) minus the amount that penetrates through the clothing (10 %), and is expressed as mg a.s./day.

[2] TNsG 2002, part 2, p 204 Cotton, knitwear, plastic, wood Dried fluid 30 % - wet hand

[3] See the CAR for Propiconazole (FI CA, 2007).

[4] Based on a surface area of both palms of 410 cm2 and total surface of both hands of 820 cm2; see HEAdhoc Recommendation no. 14 Default human factors values for use in exposure assessment for biocidal products.

Calculations for Scenario [14]

Relevant calculations are included in Annex 3.2

Summary table: estimated exposure from Laundery of brushing work clothes

Exposure scenario	Active substance	Estimated oral uptake	Estimated dermal uptake	Estimated total uptake	Estimated systemic total uptake mg/kg bw/d
Laundery of brushing work clothes	cypermethrin		1,96E-06	1,96E-06	1,60E-05
	tebuconazol		3,36E-06	3,36E-06	2,75E-05
	propiconazol		3,36E-06	3,36E-06	2,75E-05
	IPBC		3,36E-06	3,36E-06	2,75E-05

Combined scenarios

Combined exposures by same active substance by different tasks may occur. For this assessment, mixing and loading, brushing, laundering work clothes and cleanig brushes for trained professionals were combined for each active substance.

Combined Scenarios Brushing/M&L/Laundering/Cleaning brushes							
Combined scaniros	**Tier**	**Active substance**	**Systemic Exposure Scnario (5) mg/kg bw/d**	**Systemic Exposure Scnario (7) mg/kg bw/d**	**Systemic Exposure Scnario (8) mg/kg bw/d**	**Systemic Exposure Scnario (14) mg/kg bw/d**	**Systemic exposure combined scenarios mg/kg bw/d**
(5) + (7) + (8) + (14)	(5)Tier1 + (7) +(8) + (14) Tier1	cypermethrin	5,40E-02	2,27E-04	1,60E-05	2,29E-03	5,65E-02
		tebuconazol	9,28E-02	3,88E-04	2,75E-05	3,93E-03	9,71E-02
		propiconazol	9,28E-02	3,88E-04	2,75E-05	3,93E-03	9,71E-02
		IPBC	9,28E-02	3,88E-04	2,75E-05	3,93E-03	9,71E-02
	(5)Tier2 + (7) + (8) + (14) Tier1	cypermethrin	5,53E-03	2,27E-04	1,60E-05	2,29E-03	8,06E-03
		tebuconazol	9,50E-03	3,88E-04	2,75E-05	3,93E-03	1,38E-02
		propiconazol	9,50E-03	3,88E-04	2,75E-05	3,93E-03	1,38E-02
		IPBC	9,50E-03	3,88E-04	2,75E-05	3,93E-03	1,38E-02
	(5)Tier2 + (7) + (8) + (14) Tier2	cypermethrin	5,53E-03	2,27E-04	1,60E-05	2,29E-04	6,00E-03
		tebuconazol	9,50E-03	3,88E-04	2,75E-05	3,93E-04	1,03E-02
		propiconazol	9,50E-03	3,88E-04	2,75E-05	3,93E-04	1,03E-02
		IPBC	9,50E-03	3,88E-04	2,75E-05	3,93E-04	1,03E-02

Monitoring data

No further information on surveys or studies with the actual biocidal product or with a surrogate were submitted.

Dietary exposure

Exposure to food, drinking water or livestock can be excluded when the product is applied according to the recommended uses. Additionally, the RMM *"Do not use on wood which may come in direct contact with food feeding stuff and livestock animals"* is applied to exclude contact with food and feedstuff.

2.2.6.3 Risk characterisation for human health

Reference values to be used in Risk Characterisation

	Cypermethrin	Tebuconazol	Propiconazol	IPBC
AEL long term (mg/kg bw/day)	0,022	0,03	0,08	0.2
AEL medium term (mg/kg bw/day)	0,05			
AEL short term (mg/kg bw/day)	0,088	0,03	0.3	0.35

Value(s) used in the Risk Assessment – Dermal absorption				
Substance	Cypermethrine	Tebuconazole	Propiconazole	IPBC
Value(s)*	75%	75%	75%	75%
Justification for the selected value(s)	Guidance on Dermal Absorption, EFSA Journal 2012;10(4):2665			

Value(s) used in the Risk Assessment – Oral absorption				
Substance	Cypermethrine	Tebuconazole	Propiconazole	IPBC
Value(s)*	57%	(>98%) 100%[1]	(86%) 100%[1]	(>90%)100%[1]
Justification for the selected value(s)	Cypermethrin Assessment Report cis:trans/40:60 PT08 Belgium 2013 Tebuconazol Assessment Report PT08 Denmark 2007 Propiconazol Assessment Report PT08 Finland 2007 IPBC Assessment Report PT08 Denmark 2008			

[1] The 'Guidance on the BPR: Volume III Parts B+C' (Version 4.0, December 2017) notes (p. 66) that "…when the oral absorption rate exceeds 80%, the default value of 100% should be applied for the derivation of AELs and internal exposure levels."

Maximum residue limits or equivalent

MRLs or other relevant reference values	**Reference**	**Relevant commodities**	**Value**
MRL	EU Reg. 396/2005 (PPP)	All commodities	Cypermethrin: 0.05*-30 mg/kg (Reg EU 2017/626)
			Tebuconazole : 0.02-40 mg/kg (Reg EU 2018/1514)
			Propiconazole: 0.01* – 0.05* mg/kg (Reg EU 2021/155)
	EU Reg. 470/2009 (VMP)	Food of animal origin	Cypermethin 20 µg/kg

PPP: plant protection product
VMP: veterinary medicinal product

As the product is to be used for preventive and curative treatment of interior woods that do not come in direct contact with food and feedstuff, the existing MRLs are not expected to be exceeded.

Risk for industrial users

Seanario 1 Vacuum-pressure

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Scenario [1] Vacuum-pressure	1	cypermethrin	0,022	2,74E-02	124,74%	NO
		tebuconazol	0,03	4,70E-02	156,81%	NO
		propiconazol	0,08	4,70E-02	58,80%	YES
		IPBC	0,2	4,70E-02	23,52%	YES
Scenario [1] Vacuum-pressure	2a	cypermethrin	0,022	1,76E-02	79,96%	YES
		tebuconazol	0,03	3,02E-02	100,53%	NO
		propiconazol	0,08	3,02E-02	37,70%	YES
		IPBC	0,2	3,02E-02	15,08%	YES
Scenario [1] Vacuum-pressure	2b	cypermethrin	0,022	1,76E-02	79,91%	YES
		tebuconazol	0,03	3,01E-02	100,46%	NO
		propiconazol	0,08	3,01E-02	37,67%	YES
		IPBC	0,2	3,01E-02	15,07%	YES
Scenario [1] Vacuum-pressure	3	cypermethrin	0,022	9,05E-03	41,14%	YES
		tebuconazol	0,03	1,55E-02	51,71%	YES
		propiconazol	0,08	1,55E-02	19,39%	YES
		IPBC	0,2	1,55E-02	7,76%	YES

Combined exposure to several active substances within the biocidal product

According to Guidance on the Biocidal Products Regulation Volume III Human Health - Assessment & Evaluation (Parts B+C) Version 4.0 December 2017, risk characterisation from combined exposure to each active substances in product has been carried out.

Tier 1:
The decision-making criterion for acceptability of risk remains as in the case of quantitative risk characterization unchanged: the estimated level of exposure to each substance must be lower than its AEL in the considered scenario or the HQ. The Hazard Quotient is defined by the ratio of internal exposure and AEL.
HQ= Internal Exposure / AEL
If HQ <1: the risk from the individual components is considered acceptable and the effects of the biocidal product/mixture must be assessed (as outline in Tier 2 below).
If HQ >1: the risk from the individual components is not considered acceptable and before proceeding to Tier 2 refinement of hazard and/or exposure assessment needs to be performed first so that the HQ <1.

Tier2:
The effects used to establish the AELs for each of the substances in the mixture/biocidal product are considered concentration or dose-additive. This approach is known to be conservative but corresponds to a pragmatically approach avoiding wasted time in a regulated context with many dossiers to assess.
Hazard Quotient is defined by the ratio of internal exposure and AEL:
HQ= Internal Exposure / AEL
HQ for each substance will be used to calculate a HI for the mixture/biocidal product according to the following method:
HI = Σ HQa.s.
The HI being the sum of the HQs for each substance.
The Hazard Quotient is defined as: estimation of internal exposure/AEL.
If HI ≤1 the risk related to use of the mixture will be considered acceptable;
If HI >1 the risk related to use of the mixture will be considered unacceptable and refinement is needed.

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HI=∑ Hqi	Acceptable (yes/no
Vacuum-pressure	1	cypermethrin	0,022	2,74E-02	124,74%	1,25	>1	NO
		tebuconazol	0,03	4,70E-02	156,81%	1,57		
		propiconazol	0,08	4,70E-02	58,80%	0,59		
		IPBC	0,2	4,70E-02	23,52%	0,24		
Vacuum-pressure	2	cypermethrin	0,022	1,76E-02	79,91%	0,80	>1	NO
		tebuconazol	0,03	3,01E-02	100,46%	1,00		
		propiconazol	0,08	3,01E-02	37,67%	0,38		
		IPBC	0,2	3,01E-02	15,07%	0,15		
Vacuum-pressure	3	cypermethrin	0,022	9,05E-03	41,14%	0,41	>1	NO
		tebuconazol	0,03	1,55E-02	51,71%	0,52		
		propiconazol	0,08	1,55E-02	19,39%	0,19		
		IPBC	0,2	1,55E-02	7,76%	0,08		

➔ HI > 1, the risk is unacceptable, a refinement is needed.

A Tier 3B approach is considered since the 4 active substances have target organs in common.

The liver is a target organ common to cypermethrine, propiconazole, tebuconazole and IPBC.
The kidney is a target organ common to cypermethrine, propiconazole and IPBC.
Blood is a target organ common to cypermethrine, propiconazole and tebuconazole.
The adrenal is a target organ common to propiconazole and tebuconazole.

The lung is a target organ common to cypermethrine and IPBC.

Specific target organ AELS can be derived for each active substance based on the available data in the CARs.

	Cyperméthrine	**Tébuconazole**	**Propiconazole**	**IPBC**
General long term AEL	0.022	0.03	0.08	0.2
Specific AEL: liver	0.18 (3 weeks rat)	0.06 (24 months mice)	0.08 (2 generation rat)	0.2 (90 days rat)
Specific AEL: kidney	0.022 (90 days rat)	-	0.5 (28 days rat)	0.35 (90 days rat)
Specific AEL: Hemato	0.022 (24 months rat)	0.3 (28 days rat)	0.761 (90 days rat)	
Specific AEL: adrenals		0.03 (1 year dog)	0.04 (24 months rat)	
Specific AEL: lungs	0.07 (90 days dog)			0.2 (24 months rat)

The comparison of the exposure values with the specific AELs leads to the following results:

	Cypermethrin	**Propiconazol**	**Tebuconazol**	**IPBC**		
Combined exposure	9,05E-03	1,55E-02	1,55E-02	1,55E-02		

AEL liver	0.18	0.08	0.06	0.2		**HI**
%AEL	5%	19%	26%	8%	58%	0.58

AEL kidney	0.022	0.5		0.35		
%AEL	41%	3%		4%	49%	0.49

AEL hematology	0.022	0.761	0.3			
%AEL	41%	2%	5%		48%	0.48

AEL adrenals		0.036	0.03			
%AEL		43%	52%		95%	0.95

AEL Lung	0.07			0.2		
%AEL	13%			8%	20%	0.20

HI is < 1 for ervery organ. In this context, the **risk is considered acceptable** for industrial vacuum-pressure application of product when all PPEs (new gloves each work shift, impermeable coverall and P3 mask) are worn, then**, this use will be authorised.**

Scenario [2] automated dipping

Systemic effects

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Automated dipping	1	cypermethrin	0,022	3,66E-02	1,66E+02	NO
		tebuconazol	0,03	6,28E-02	2,09E+02	NO
		propiconazol	0,08	6,28E-02	7,85E+01	YES
		IPBC	0,2	6,28E-02	3,14E+01	YES
Automated dipping	2	cypermethrin	0,022	2,36E-02	1,07E+02	NO
		tebuconazol	0,03	4,03E-02	1,34E+02	NO
		propiconazol	0,08	4,03E-02	5,04E+01	YES
		IPBC	0,2	4,03E-02	2,02E+01	YES
Fully Automated dipping	3	cypermethrin	0,022	5,89E-03	2,68E+01	YES
		tebuconazol	0,03	1,01E-02	3,36E+01	YES
		propiconazol	0,08	1,01E-02	1,26E+01	YES
		IPBC	0,2	1,01E-02	5,04E+00	YES

Combined exposure to several active substances within the biocidal product

According to Guidance on the Biocidal Products Regulation Volume III Human Health - Assessment & Evaluation (Parts B+C) Version 4.0 December 2017, risk characterisation from combined exposure to each active substances in product has been carried out.

Tier 1:
The decision-making criterion for acceptability of risk remains as in the case of quantitative risk characterization unchanged: the estimated level of exposure to each substance must be lower than its AEL in the considered scenario or the HQ. The Hazard Quotient is defined by the ratio of internal exposure and AEL.
HQ= Internal Exposure / AEL
If HQ <1: the risk from the individual components is considered acceptable and the effects of the biocidal product/mixture must be assessed (as outline in Tier 2 below).
If HQ >1: the risk from the individual components is not considered acceptable and before proceeding to Tier 2 refinement of hazard and/or exposure assessment needs to be performed first so that the HQ <1.
Tier2:
The effects used to establish the AELs for each of the substances in the mixture/biocidal product are considered concentration or dose-additive. This approach is known to be conservative but corresponds to a pragmatically approach avoiding wasted time in a regulated context with many dossiers to assess.
Hazard Quotient is defined by the ratio of internal exposure and AEL:
HQ= Internal Exposure / AEL
HQ for each substance will be used to calculate a HI for the mixture/biocidal product according to the following method:
HI = Σ HQa.s.

The HI being the sum of the HQs for each substance.
The Hazard Quotient is defined as: estimation of internal exposure/AEL.
If HI ≤1 the risk related to use of the mixture will be considered acceptable;
If HI >1 the risk related to use of the mixture will be considered unacceptable and refinement is needed.

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HI=∑ Hqi	Acceptable (yes/no
Automated dipping	1	cypermethrin	0,022	3,66E-02	1,66E+02	1,66E+00	>1	NO
		tebuconazol	0,03	6,28E-02	2,09E+02	2,09E+00		
		propiconazol	0,08	6,28E-02	7,85E+01	7,85E-01		
		IPBC	0,2	6,28E-02	3,14E+01	3,14E-01		
Automated dipping	2	cypermethrin	0,022	2,36E-02	1,07E+02	1,07E+00	>1	NO
		tebuconazol	0,03	4,03E-02	1,34E+02	1,34E+00		
		propiconazol	0,08	4,03E-02	5,04E+01	5,04E-01		
		IPBC	0,2	4,03E-02	2,02E+01	2,02E-01		
Fully Automated dipping	3	cypermethrin	0,022	5,89E-03	2,68E+01	2,68E-01	3,18E-01	YES
		tebuconazol	0,03	1,01E-02	3,36E+01	3,36E-01		
		propiconazol	0,08	1,01E-02	1,26E+01	1,26E-01		
		IPBC	0,2	1,01E-02	5,04E+00	5,04E-02		

The Risk is accesptable for automated dipping in Tier 3, when dipping is a **fully automated dipping process** and using gloves and impermeable coverall.

Scenario [3]Industrial Spraying

Systemic effects

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Automated spraying	1	cypermethrin	0,022	1,83E-02	83,16	acceptable
		tebuconazol	0,03	3,13E-02	104,54	unacceptable
		propiconazol	0,08	3,13E-02	39,20	acceptable
		IPBC	0,2	3,13E-02	15,68	acceptable

Automated spraying	2	cypermethrin	0,022	1,17E-02	53,31	acceptable
		tebuconazol	0,03	2,02E-02	67,02	acceptable
		propiconazol	0,08	2,02E-02	25,13	acceptable
		IPBC	0,2	2,02E-02	10,05	acceptable
Automated spraying	3	cypermethrin	0,022	1,17E-02	53,28	acceptable
		tebuconazol	0,03	2,02E-02	66,98	acceptable
		propiconazol	0,08	2,02E-02	25,12	acceptable
		IPBC	0,2	2,02E-02	10,05	acceptable
Automated spraying	4	cypermethrin	0,022	6,03E-03	27,43	acceptable
		tebuconazol	0,03	1,04E-02	34,50	acceptable
		propiconazol	0,08	1,04E-02	12,94	acceptable
		IPBC	0,2	1,04E-02	5,18	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Automated spraying	1	cypermethrin	0,022	1,83E-02	83,16	8,32E-01	<1	>1	NO
		tebuconazol	0,03	3,13E-02	104,54	1,05E+00	>1		
		propiconazol	0,08	3,13E-02	39,20	3,92E-01	<1		
		IPBC	0,2	3,13E-02	15,68	1,57E-01	<1		
Automated spraying	2	cypermethrin	0,022	1,17E-02	53,31	5,33E-01	<1	1,56E+00	NO
		tebuconazol	0,03	2,02E-02	67,02	6,70E-01	<1		
		propiconazol	0,08	2,02E-02	25,13	2,51E-01	<1		
		IPBC	0,2	2,02E-02	10,05	1,01E-01	<1		
Automated spraying	3	cypermethrin	0,022	1,17E-02	53,28	5,33E-01	<1	1,55E+00	NO
		tebuconazol	0,03	2,02E-02	66,98	6,70E-01	<1		
		propiconazol	0,08	2,02E-02	25,12	2,51E-01	<1		
		IPBC	0,2	2,02E-02	10,05	1,00E-01	<1		
Automated spraying	4	cypermethrin	0,022	6,03E-03	27,43	2,74E-01	<1	8,00E-01	YES
		tebuconazol	0,03	1,04E-02	34,50	3,45E-01	<1		

		propiconazol	0,08	1,04E-02	12,94	1,29E-01	<1		
		IPBC	0,2	1,04E-02	5,18	5,18E-02	<1		

HI is < 1, thus, the **risk is considered acceptable** for industrial spraying application of product when PPEs are worn: **new gloves each work shift, impermeable coverall and P3 mask.**

Scenario [4]Trained-professional Spraying

Systemic effects

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Trained-professional Spraying	1	cypermethrin	0,022	8,70E-01	3,96E+03	unacceptable
		tebuconazol	0,03	1,49E+00	4,97E+03	unacceptable
		propiconazol	0,08	1,49E+00	1,86E+03	unacceptable
		IPBC	0,2	1,49E+00	7,46E+02	unacceptable
Trained-professional Spraying	2	cypermethrin	0,022	4,05E-01	1,84E+03	unacceptable
		tebuconazol	0,03	6,96E-01	2,32E+03	unacceptable
		propiconazol	0,08	6,96E-01	8,70E+02	unacceptable
		IPBC	0,2	6,96E-01	3,48E+02	unacceptable
Trained-professional Spraying	3	cypermethrin	0,022	3,67E-02	1,67E+02	unacceptable
		tebuconazol	0,03	6,30E-02	2,10E+02	unacceptable
		propiconazol	0,08	6,30E-02	7,88E+01	acceptable
		IPBC	0,2	6,30E-02	3,15E+01	acceptable
Trained-professional Spraying	4	cypermethrin	0,022	3,31E-02	1,50E+02	unacceptable
		tebuconazol	0,03	5,68E-02	1,89E+02	unacceptable
		propiconazol	0,08	5,68E-02	7,10E+01	acceptable
		IPBC	0,2	5,68E-02	2,84E+01	acceptable

➔ When the risk is assessed substance by substance, the risk is **unacceptable** even if PPEs are worn. In this context, no additional risk characterization is performed.

An unsafe situation has been identified for trained prefessioinal spraying application of product even when wearing PPEs, then**, this use will not be authorised.**

Scenario [5] Trained-professional brushing

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Trained-professional Brushing	1	cypermethrin	0,022	8,70E-01	2,45E+02	unacceptable
		tebuconazol	0,03	1,49E+00	3,09E+02	unacceptable
		propiconazol	0,08	1,49E+00	1,16E+02	unacceptable
		IPBC	0,2	1,49E+00	4,64E+01	acceptable
Trained-professional Brushing	2	cypermethrin	0,022	4,05E-01	2,51E+01	acceptable
		tebuconazol	0,03	6,96E-01	3,17E+01	acceptable
		propiconazol	0,08	6,96E-01	1,19E+01	acceptable
		IPBC	0,2	6,96E-01	4,75E+00	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Automated brushing	2	cypermethrin	0,022	4,05E-01	2,51E+01	2,51E-01	<1	7,34E-01	YES
		tebuconazol	0,03	6,96E-01	3,17E+01	3,17E-01	<1		
		propiconazol	0,08	6,96E-01	1,19E+01	1,19E-01	<1		
		IPBC	0,2	6,96E-01	4,75E+00	4,75E-02	<1		

Scenario [6] Trained-professional Injection

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Trained-professional Injection	1	cypermethrin	0,022	1,40E-02	6,38E+01	acceptable
		tebuconazol	0,03	2,40E-02	8,02E+01	acceptable
		propiconazol	0,08	2,40E-02	3,01E+01	acceptable
		IPBC	0,2	2,40E-02	1,20E+01	acceptable
Trained-professional	2	cypermethrin	0,022	1,40E-02	6,36E+01	acceptable
		tebuconazol	0,03	2,40E-02	8,00E+01	acceptable

Injection		propiconazol	0,08	2,40E-02	3,00E+01	acceptable
		IPBC	0,2	2,40E-02	1,20E+01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Trained professional injection	1	cypermethrin	0,022	1,40E-02	6,38E+01	6,38E-01	<1	1,86E+00	NO
		tebuconazol	0,03	2,40E-02	8,02E+01	8,02E-01	<1		
		propiconazol	0,08	2,40E-02	3,01E+01	3,01E-01	<1		
		IPBC	0,2	2,40E-02	1,20E+01	1,20E-01	<1		
Trained professional injection	2	cypermethrin	0,022	1,40E-02	6,36E+01	6,36E-01	<1	1,86E+00	NO
		tebuconazol	0,03	2,40E-02	8,00E+01	8,00E-01	<1		
		propiconazol	0,08	2,40E-02	3,00E+01	3,00E-01	<1		
		IPBC	0,2	2,40E-02	1,20E+01	1,20E-01	<1		

➔ HI > 1, the risk is unacceptable, a refinement is needed.

A Tier 3B approach is considered since the 4 active substances have target organs in common.

The liver is a target organ common to cypermethrine, propiconazole, tebuconazole and IPBC.
The kidney is a target organ common to cypermethrine, propiconazole and IPBC.
Blood is a target organ common to cypermethrine, propiconazole and tebuconazole.
The adrenal is a target organ common to propiconazole and tebuconazole.
The lung is a target organ common to cypermethrine and IPBC.

Specific target organ AELS can be derived for each active substance based on the available data in the CARs.

	Cyperméthrine	Tébuconazole	Propiconazole	IPBC
General long term AEL	0.022	0.03	0.08	0.2
Specific AEL: liver	0.18 (3 weeks rat)	0.06 (24 months mice)	0.08 (2 generation rat)	0.2 (90 days rat)
Specific AEL: kidney	0.022 (90 days rat)	-	0.5 (28 days rat)	0.35 (90 days rat)
Specific AEL: Hemato	0.022 (24 months rat)	0.3 (28 days rat)	0.761 (90 days rat)	
Specific AEL: adrenals		0.03 (1 year dog)	0.04 (24 months rat)	

Specific AEL: lungs	0.07 (90 days dog)			0.2 (24 months rat)	

The comparison of the exposure values with the specific AELs leads to the following results:

	Cyperméthrine	**Propiconazole**	**Tébuconazole**	**IPBC**		
Combined exposure	1,40E-02	2,40E-02	2,40E-02	2,40E-02		
AEL liver	0.18	0.08	0.06	0.2		**HI**
%AEL	8%	30%	41%	12%	90%	0.90
AEL kidney	0.022	0.5		0.35		
%AEL	64%	5%		7%	75%	0.75
AEL hematology	0.022	0.761	0.3			
%AEL	64%	3%	8%		75%	0.75
AEL adrenals		0.036	0.03			
%AEL		67%	80%		**147%**	**1.47**
AEL Lung	0.07			0.2		
%AEL	20%			12%	32%	0.32

HI is >1 for adrenals. In this context, the **risk is considered unacceptable** for Trained-professional Injection of product even when all PPEs are worn, then**, this use will not be authorised.**

Scenario [7] Trained-professional Mixing and Loading

Task/ Scenario	**Tier**	**Active substance**	**AEL mg/kg bw/d**	**Estimated uptake mg/kg bw/d**	**Estimated uptake/ AEL (%)**	**Acceptable (yes/no)**
Trained-professional Mixing and Loading	1	cypermethrin	0,022	2,27E-04	1,03E-00	acceptable
		tebuconazol	0,03	3,88E-04	1,29E-00	acceptable
		propiconazol	0,08	3,88E-04	4,85E-01	acceptable
		IPBC	0,2	3,88E-04	1,94E-01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Trained-professional M&L	2	cypermethrin	0,022	2,27E-04	1,03E-00	1,03E-02	<1	3,01E-02	YES
		tebuconazol	0,03	3,88E-04	1,29E-00	1,29E-02	<1		
		propiconazol	0,08	3,88E-04	4,85E-01	4,85E-03	<1		
		IPBC	0,2	3,88E-04	1,94E-01	1,94E-03	<1		

Scenario [8] Washing out of brushes

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Washing out of brushes	1	cypermethrin	0,022	2,29E-03	1,04E+01	acceptable
		tebuconazol	0,03	3,93E-03	1,31E+01	acceptable
		propiconazol	0,08	3,93E-03	4,91E-00	acceptable
		IPBC	0,2	3,93E-03	1,97E-00	acceptable
Washing out of brushes	2	cypermethrin	0,022	2,29E-04	1,04E-00	acceptable
		tebuconazol	0,03	3,93E-04	1,31E-00	acceptable
		propiconazol	0,08	3,93E-04	4,91E-02	acceptable
		IPBC	0,2	3,93E-04	1,97E-02	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Washing out of brushes	1	cypermethrin	0,022	2,29E-03	1,04E+01	1,04E-01	<1	3,04E-01	YES
		tebuconazol	0,03	3,93E-03	1,31E+01	1,31E-01	<1		
		propiconazol	0,08	3,93E-03	4,91E-00	4,91E-02	<1		
		IPBC	0,2	3,93E-03	1,97E-00	1,97E-02	<1		
Washing out of brushes	2	cypermethrin	0,022	2,29E-04	1,04E-00	1,04E-02	<1	3,04E-02	YeS
		tebuconazol	0,03	3,93E-04	1,31E-00	1,31E-02	<1		
		propiconazol	0,08	3,93E-04	4,91E-02	4,91E-03	<1		
		IPBC	0,2	3,93E-04	1,97E-02	1,97E-03	<1		

Combined scenarios

Combined Scenarios Trained professionals Brushing / M&L /Washing brushes

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Scenario(5) + Scenario (7) + Scenario (8)	(5) Tier2 + (7) + (8) Tier(1)	cipermethri	0,022	8,05E-03	3,66E+01	3,66E-01	<1	1,07E+00	NO
		tebuconazol	0,03	1,38E-02	4,61E+01	4,61E-01	<1		
		propiconazo	0,08	1,38E-02	1,73E+01	1,73E-01	<1		
		IPBC	0,2	1,38E-02	6,91E-00	6,91E-02	<1		
	(5) Tier2 + (7) + (8) Tier(2)	cipermethri	0,022	5,99E-03	2,72E+01	2,72E-01	<1	7,95E-01	YES
		tebuconazol	0,03	1,03E-02	3,43E+01	3,43E-01	<1		
		propiconazo	0,08	1,03E-02	1,29E+01	1,29E-01	<1		
		IPBC	0,2	1,03E-02	5,14E-00	5,14E-02	<1		

The **Risk is accesptable** for combined scenarios for trained professionals Brushing / M&L /Washing brushes, when gloves and coveralls in brushing and gloves in washing bruses are worn.

Secondary (indirect) Exposure

Scenario [9] Professional sanding treated wood. Curative

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Professional sanding treated wood. Curative	1	cypermethrin	0,022	9,60E-04	4,36E+00	acceptable
		tebuconazol	0,03	1,65E-03	5,49E+00	acceptable
		propiconazol	0,08	1,65E-03	2,06E+00	acceptable
		IPBC	0,2	1,65E-03	8,23E-01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQi<1	HI=∑ HQi	Acceptable

Professional sanding treated wood. Curative	cypermethrin	0,022	9,60E-04	4,36E+00	4,36E-02	<1	1,27E-01	YES
	tebuconazol	0,03	1,65E-03	5,49E+00	5,49E-02	<1		
	propiconazol	0,08	1,65E-03	2,06E+00	2,06E-02	<1		
	IPBC	0,2	1,65E-03	8,23E-01	8,23E-03	<1		

Scenario [9] Non- Professional sanding treated wood. Curative

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Non-Professional sanding treated wood. Curative	1	cypermethrin	0,088	9,04E-04	1,03E+00	acceptable
		tebuconazol	0,03	1,55E-03	5,17E+00	acceptable
		propiconazol	0,3	1,55E-03	5,17E-01	acceptable
		IPBC	0,35	1,55E-03	4,43E-01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Non-Professional sanding treated wood. Curative	cypermethrin	0,088	9,04E-04	1,03E+00	1,03E-02	<1	7,15E-02	YES
	tebuconazol	0,03	1,55E-03	5,17E+00	5,17E-02	<1		
	propiconazol	0,3	1,55E-03	5,17E-01	5,17E-03	<1		
	IPBC	0,35	1,55E-03	4,43E-01	4,43E-03	<1		

Scenario [11] Toddler chewing treated wood chip

Scenario [11a] Toddler chewing treated wood chip. Curative.

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Toddler chewing treated wood chip. Curative.	1	cypermethrin	0,088	3,88E-03	4,41E+00	acceptable
		tebuconazol	0,03	1,17E-02	3,89E+01	acceptable
		propiconazol	0,3	1,17E-02	3,89E+00	acceptable
		IPBC	0,35	1,17E-02	3,33E+00	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Toddler chewing treated wood chip. Curative.	cypermethrin	0,088	3,88E-03	4,41E+00	4,41E-02	<1	5,05E-01	YES
	tebuconazol	0,03	1,17E-02	3,89E+01	3,89E-01	<1		
	propiconazol	0,3	1,17E-02	3,89E+00	3,89E-02	<1		
	IPBC	0,35	1,17E-02	3,33E+00	3,33E-02	<1		

The **Risk is accesptable** for Toddler chewing treated wood chid curative, then, risk is also acceptable for scenario 11b, Toddler chewing treated wood chip. Preventive.

Scenario [12] Toddler playing and mouthing on playground weathered wood structure outdoors

Scenario [12a] Toddler playing and mouthing on playground weathered wood structure outdoors. Preventive

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Toddler P&M. Preventive	1	cypermethrin	0,088	1,00E-02	4,57E+01	acceptable
		tebuconazol	0,03	2,77E-02	9,22E+01	acceptable
		propiconazol	0,3	2,77E-02	3,46E+01	acceptable
		IPBC	0,35	2,77E-02	1,38E+01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Toddler P&M. Preventive	cypermethrin	0,088	1,00E-02	4,57E+01	4,57E-01	<1	1,21E+00	NO
	tebuconazol	0,03	2,77E-02	9,22E+01	9,22E-01	<1		
	propiconazol	0,3	2,77E-02	3,46E+01	3,46E-01	<1		
	IPBC	0,35	2,77E-02	1,38E+01	1,38E-01	<1		

➔ HI > 1, the risk is unacceptable, a refinement is needed.

A Tier 3B approach is considered since the 4 active substances have target organs in common.

The liver is a target organ common to cypermethrine, propiconazole, tebuconazole and IPBC.
The kidney is a target organ common to cypermethrine, propiconazole and IPBC.
Blood is a target organ common to cypermethrine, propiconazole and tebuconazole.
The adrenal is a target organ common to propiconazole and tebuconazole.
The lung is a target organ common to cypermethrine and IPBC.

Specific target organ AELS can be derived for each active substance based on the available data in the CARs.

	Cyperméthrine	**Tébuconazole**	**Propiconazole**	**IPBC**
General long term AEL	0.022	0.03	0.08	0.2
Specific AEL: liver	0.18 (3 weeks rat)	0.06 (24 months mice)	0.08 (2 generation rat)	0.2 (90 days rat)
Specific AEL: kidney	0.022 (90 days rat)	-	0.5 (28 days rat)	0.35 (90 days rat)
Specific AEL: Hemato	0.022 (24 months rat)	0.3 (28 days rat)	0.761 (90 days rat)	
Specific AEL: adrenals		0.03 (1 year dog)	0.04 (24 months rat)	
Specific AEL: lungs	0.07 (90 days dog)			0.2 (24 months rat)

The comparison of the exposure values with the specific AELs leads to the following results:

	Cyperméthrine	**Propiconazole**	**Tébuconazole**	**IPBC**		
Combined exposure	1,00E-02	2,77E-02	2,77E-02	2,77E-02		

AEL liver	0.18	0.08	0.06	0.2		**HI**
%AEL	6%	35%	47%	14%	**101%**	**1.01**

AEL kidney	0.022	0.5		0.35		
%AEL	11%	6%		8%	25%	0.25

AEL hematology	0.022	0.761	0.3			
%AEL	11%	4%	9%		24%	0.24

AEL adrenals		0.036	0.03			
%AEL		77%	92%		**169%**	**1.69**

AEL Lung	0.07			0.2		
%AEL	14%			14%	28%	0.28

HI is >1 for liver and adrenals. In this context, the **risk is considered unacceptable** for toddlers playing and mouthing on playground weathered wood structure outdoors preventively treated.
To avoid this risk, the following risk mitigation measure has to be added to the product assessment report:
"The product is not for treatment of timber for playground structures, floors or any other surface where children are expected to have direct and continuous contact."

Scenario [12b] Toddler playing and mouthing on playground weathered wood structure outdoors. Curative

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Toddler P&M. Curative/chronic	1	cypermethrin	0,022	1,51E-02	6,85E+01	acceptable
		tebuconazol	0,03	4,15E-02	1,38E+02	unacceptable
		propiconazol	0,08	4,15E-02	5,19E+01	acceptable
		IPBC	0,2	4,15E-02	2,08E+01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Toddler P&M. Curative/chronic	cypermethrin	0,022	1,51E-02	6,85E+01	6,85E-01	<1	2,80E+00	NO
	tebuconazol	0,03	4,15E-02	1,38E+02	1,38E+00	>1		
	propiconazol	0,08	4,15E-02	5,19E+01	5,19E-01	<1		
	IPBC	0,2	4,15E-02	2,08E+01	2,08E-01	<1		

The **risk is considered unacceptable** for toddler playing and mouthing on playground weathered wood structure outdoors curatively treated.
To avoid this risk, the following risk mitigation measure has to be added to the product assessment report:
"The product is not for treatment of timber for playground structures, floors or any other surface where children are expected to have direct and continuous contact."

Scenario [13] General public - Inhalation volatilased residues indoors

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Inhalation volatilased residues indoors		IPBC	0,2	4,08E-03	2,04E+00	acceptable

Scenario [14]: Laundering of brushing work clothes

Task/ Scenario	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Laundering of brushing work clothes	1	cypermethrin	0,022	1,60E-05	0,07	acceptable
		tebuconazol	0,03	2,75E-05	0,09	acceptable
		propiconazol	0,08	2,75E-05	0,03	acceptable
		IPBC	0,2	2,75E-05	0,01	acceptable

Combined exposure to several active substances within the biocidal product

Task/ Scenario	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
Laundering of brushing work clothes	cypermethrin	0,022	1,60E-05	7,00E-02	7,00E-04	<1	2,00E-03	YES
	tebuconazol	0,03	2,75E-05	9,00E-02	9,00E-04	<1		
	propiconazol	0,08	2,75E-05	3,00E-02	3,00E-04	<1		
	IPBC	0,2	2,75E-05	1,00E-02	1,00E-04	<1		

Combined scenarios

Combined Scenarios Trained professionals Brushing / M&L /Washing brushes / Laundering work clothes

Task/ Scenari	Tier	Active substance	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	HQi	HQi>1 HQI<1	HI=∑ Hqi	Acceptable
+ (5)	(5) Tier2 +	cipermethri	0,022	6,00E-03	2,73E+01	2,73E-01	<1	7,95E-01	YES
		tebuconazol	0,03	1,03E-02	3,44E+01	3,44E-01	<1		

	(7) + (8) Tier(2) + (14)	propiconazo	0,08	1,03E-02	1,29E+01	1,29E-01	<1		
		IPBC	0,2	1,03E-02	5,15E+00	5,15E-02	<1		

The **Risk is accesptable** for combined scenarios for trained professionals Brushing / M&L /Washing brushes / Laundering work clothes, when gloves and coveralls in brushing and gloves in washing bruses are worn.

Risk assessment of effect due to presence of non active substance(s) (i.e. substance(s) of concern SoCs)

According to *Guidance on the BPR: Volume III Parts B+C Version 4.0 December 2017; Annex A: Substances of Concern – Proposed Human Health (Toxicology) Assessment Scheme for Authorisation of Biocidal Products*, a risk assessment has been performed for all SoCs in the biocidal product.
Two SoCs have been identified in product:

Common name	IUPAC name	Function	CAS number	EC number	Content (%)
Butyldiglycol	2-(2-butoxyethoxy)ethanol	no-active substance	112-34-5	203-961-6	10
Kerosine	-	no-active substance	64742-81-0	265-184-9	76.125

These (toxicological) SoCs are present in the biocidal product at concentrations leading or contributing to the classification of the product according to Directive 1999/45/EC or the CLP Regulation.
Both, butyldiglicol and kerosene, contribute to the classification of product:
- Eye Irrit. 2 H319 Causes serious eye irritation
- STOT-RE 3 H336 May cause drowsiness or dizziness

Kerosine leads to the classification of product:
- Asp. Tox. 1 H304 May be fatal if swallowed and enters airways
- Skin Irrit. 2 H315 Causes skin irritation

The SoCs are assigned to product hazard classification band A:

Band	Classification of biocidal product according to CLP Regulation due to classified SoC	Associated evaluation/risk management requirements
A	Acute Tox 4 (H332, H312, H302) STOT SE 2 (H371) **Asp Tox 1 (H304)** EUH066 **STOT SE 3 (H336)** **Eye Irrit 2 (H319)** STOT SE 3 (H335) **Skin Irrit 2 (H315)**	Application of P-statements normally associated with concerned H-statements

It is proposed that for these SoCs, appropriate risk mitigation measures, in the form of the the precautionary (P)-statements normally associated with the concerned hazard (H)-statements under the CLP Regulation, have to be applied:

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray
- P271 Use only outdoors or in well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Moreover, one SoCs meeting criterion 5 has been identified in product, Butyldiglycol (*Guidance on the BPR: Volume III Parts B+C Version 4.0 December 2017; Annex A: Substances of Concern – Proposed Human Health (Toxicology) Assessment Scheme for Authorisation of Biocidal Products)*. This criterion identifies substances for which there are EU IOELVs. The requirements of band C should apply to these SoCs.
According to the Scientific Expert Group on Occupational Exposure Limits, a 8-hour-TWA of 67.5 mg/m^3, a short-term exposure level STEL (15 mins) of 101.2 mg/m^3.

Common name	***IUPAC name***	***Function***	***CAS number***	***EC number***	***Content (%)***	***IOELV***
Butyldiglycol	2-(2-butoxyethoxy)ethanol	no-active substance	112-34-5	203-961-6	10	***Long term*** *67,5 mg/m^3* ***Short term*** *101.2 mg/m³*

To estimate potential respiratory exposure with Butyldiglycol from JC-CTPI-3, the same assumptions that were used for exposure to the actives substances were used as a first assessment step and values below IOELV were obtained.
However, taking into account butyldiglykol is a volatile substance and primary exposure by inhalation of vapours is possible for the professional users (vapour pressure 2.92 Pa at 25 °C) ConsExpo was used to assess it.

The exposure to butyldiglycol via inhalation is estimated using ConsExpo Web with the exposure to vapour model using the brushing treatment scenario. The exposure level depends on a number of parameters such as application frequency and room volume. A room volume of 1 m^3 to reflect the personal breathing zone, a release area of 31.6 m^2 (representing the product application surface form brushing), a ventilation rate of 1.5 per hour relevant for professional use, a product amount of 7680 g assuming a brushing curative treatment , a mass transfer coefficient of 1.78E+05 m/h using Langmuir's method, an application duration of 240 minutes in line with the duration chosen for brushing scenario and an emission duration of 240 minutes per day were are assumed.
An important parameter for the ConsExpo Web exposure to vapour model is the Molecular weight matrix and in the product JC-CTPI-3 the matrix is Kerosene[3] that has not a defined molecular weight. A search in ECHA registration dossiers has been done and we have found a range of molecular weight between 135 and 170 g/mol depending on substance of reference used and we have decided to choose 170 g/mol as a worst case corresponding to C_{12} chain length (dodecane).

This results in a mean event concentration and peak concentration of 2.0 × 10¹mg/m³ which is below the 8-hour-TWA of 67.5 mg/m^3, and short-term exposure level STEL (15 mins) of 101.2 mg/m^3.

[3] A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).

The concentration of butyldiglycol in air is calculated to be 20 mg/m^3 and the resulting risk index is 30% (20/67.5) for a 8 hours TWA. The estimated exposure is thus lower than the available IOELV value for butylglycol. Taking this into account, the butyldiglycol evaporation vapours exposure to is considered acceptable.

Altogether the exposure to butyldiglycol is not considered to cause adverse health effects to the professional users when using JC-CTPI-3 in accordance to the use instructions. Due to its volatility butyldiglycol evaporates quickly after application from manure. Therefore, secondary exposure to butyldiglycol is considered negligible.

See annex 3.2 for calculations.

Conclusion

After evaluating the exposure and characterizing the risk to human health of the JC-CTPI-3 product according to the pattern of use requested by the applicant, the conclusions for each scanario are:

Summary table: scenarios		
Scenario number	**Scenario and Users (e.g. mixing/ loading)**	**Conclusion**
1.	Vacuum-pressure (preventive) Industrial user	A **safe** situation has been identified for industrial vacuum-pressure application of the product when PPEs (new gloves each work shift, impermeable coverall and P3 mask) are worn, therefore **the uses of which this scenario is part will be authorized.**
2.	Automated dipping process (preventive) Industrial user	(1) Automated dipping process: An **unsafe** situation has been identified for industrial automated dipping application of the product even when using PPE, therefore **the uses of which this scenario is part will not be authorized.** (2) Fully automated dipping process: A **safe** situation has been identified for industrial automated dipping application in Tier 3, when dipping is a **fully automated dipping process** and gloves and impermeable coverall are worn.
3.	Automated spray application (preventive) Industrial user	A **safe** situation has been identified for industrial automated spraying application of product when new gloves each work shift, impermeable coverall and P3 mask are worn**.**
4.	Spray application (preventive and curative) Trained-Professional	An **unsafe** situation has been identified for trained-professional automated spaying application of product even when using PPE, therefore **the uses of which this scenario is part will not be authorized.**

5.	Brushing (preventive and curative) Trained-professional	A **safe** situation has been identified for trained professional brushing application of product when gloves and coverall are worn.
6.	Injection (preventive and curative) Trained-Professional	An **unsafe** situation has been identified for trained-professional injection application of product even when using PPE, therefore **the uses of which this scenario is part will not be authorized.**
7.	Mixing and Loading Trained-professional	A **safe** situation has been identified for trained professional mixing and loading of product.
8.	Cleaning of brush equipment Trained-professional	A **safe** situation has been identified for trained professional cleaning brushes when **gloves** are worn.
9.	Cutting and sanding Professional	A **safe** situation has been identified for professional cutting and sanding treated wood.
10.	Cutting and sanding Non-professional	A **safe** situation has been identified for non-professional cutting and sanding treated wood.
11.	Chewing wood off-cut General public	A **safe** situation has been identified for toddler chewing treated wood chips.
12.	Playing on weathered structure and mouthing General public	A **safe** situation has been identified for toddler playing and mouthing on playground weathered wood structure outdoors preventively and curatively treated with the product. when the following risk mitigation measure is implemented: *"The product is not for treatment of timber for playground structures, floors or any other surface where children are expected to have direct and continuous contact."*
13.	Inhalation residues indoors General public	A **safe** situation has been identified for general public inhaling volatilised residues indoors.
14.	Laundering contaminated work clothing at home General public	A **safe** situation has been identified for general public inhaling volatilised residues indoors.
Combined scenarios. (5) + (7) + (8) + (14)	Trained professionals Brushing / M&L /Washing brushes / Laundering work clothes	A **safe** situation has been identified for trained professional mixing and loading, brushing, washing brushes and laundering work clothes when gloves and coveralls for brushing and gloves for washing brushes are worn.

Risk for consumers via residues in food

The product is not intended to be used in places where food is kept or entrance in contact with food during its application. Therefore, no risk is derived for consumers via residues in food. In addition, in order to avoid any potential risk by its use, the following RMM is set on product's label:

- *Do not use on wood which may come in direct contact with food feeding stuff and livestock animals.*

As the product is to be used for preventive and curative treatment of interior woods that do not come in direct contact with food and feedstuff, the existing MRLs are not expected to be exceeded.

2.2.7 Risk assessment for animal health

Not applicable. No animal exposure is foreseen

2.2.8 Risk assessment for the environment

The environmental exposure assessment of JC-CTPI-3, containing Cypermethrin, Tebuconazole, Propiconazole and IPBC and formulated as a wood preservative, was assessed in accordance with the Guidance on the Biocidal Products Regulation (Volume IV Environment, version 2.0, October 2017) and the technical agreements for biocides (TAB, Version 2.0, August 2018). This assessment was likewise performed following the recommendations of the Revised Emission Scenario Document for Wood Preservatives (OECD, 2013)

JC-CPTI-3 is intended to be used for the preventive or curative treatment of wood by industrial, professional (PCO) or amateur users.

According to OECD (2013), industrial emissions are considered to occur during the treatment process including post-treatment conditioning as well as during storage of treated wood prior to shipment. Furthermore, industrial processes are considered to be continuous, while in-situ emissions are considered discontinuous.

Industrial local floors are cemented, so run-off is generally collected and recycled via drip pads. However, unintentional spills, floor cleaning, equipment cleaning and washing waters, drag-out on tyres may reach the facility drain. Even though release of the collected waste water to a sewage treatment plant (STP) is nowadays not permitted anymore in EU member state countries, the corresponding emission pathway (facility drain to surface water via STP) is considered the worst case which can occur.

Following the "Thematic Strategy on Sustainable Use of Plant Protection Products" (Federal Germany Environmental Agency, 2012) pressure methods such as double-vacuum pressure treatments in closed facilities are considered to be the safest application methods. Furthermore, deep penetrating treatments of wood under pressure result in a better (i.e. deeper) penetration of the wood preservative into the wood thus reducing the leachability and emission from the wood during its service life. These findings are also confirmed in the field leaching performed with JC-CTPI-3 product.
On the other hand, an approach is proposed for estimating emissions to the environment from preventive and curative treatments of wooden structures that are already in place. Such treatments are performed in situ, indoor and outdoor, by professionals or amateurs.

The wood products and commodities already in service treated with remedial procedures (curative and preventive) are subject or potentially exposed to bio-deterioration. This activity includes maintenance of public and private works. The aim is to prevent failures and the restoration of the preventive protection, whenever possible and this lead to additional emissions of product residues to the environment.

Table 2.2.6-1. Summary of the application patterns used in the environmental risk assessment.

Use		**Application method**	**Dose**
Preventive	Industrial Use classes 1,2, and 3	Automated spraying	206g/m^2
		Dipping	
		IVacuum pressure	35 kg/m^3
	Professional in situ (PCO) Use classes 1,2, and 3	Spraying	206g/m^2
		Brushing	
	Amateur Use classes 1,2, and 3	Spraying	
		Brushing	
Curative	Professional in situ (PCO) Use classes 1,2, and 3	Spraying	300 mL/m^2
		Brushing	
		Injection	
	Amateur Use classes 1,2, and 3	Brushing	

According to the OECD Series on Emission Scenario Documents, Nº 2, Part 1 (Emission Scenario Document for Wood Preservatives), potential emissions from treated wood as "Use Class 1" and "Use Class 2" to the outer environment are considered negligible and therefore, none exposure scenarios are proposed for industrial operators, professional and amateurs for in situ indoor treatments. However, indoor air emissions are relevant for human exposure assessment, and it has been considered in the corresponding assessment.

According to the Revised Emission Scenario Document for Wood Preservatives (OECD, 2013), two stages of the wood preservative life cycle have to be considered for the estimation of the environmental emissions of the active substances and other possible relevant substances:

1. Industrial preventive wood preservation treatments, storage of treated wood prior to shipment and preventive or curative treatment performed in situ by professionals and amateurs.
2. Treated wood-in-service as an additional emission scenarios.

Regarding the formulation stage, JC-CTPI-3 is produced in small batches in closed systems with appropriate control measures in place to exclude release of the active substances to the environment

during formulation of the product. In addition to this, according to the Technical Notes for Guidance on Human Exposure to Biocidal Products (June 2007), processes including the manufacturing of the active substances and the biocide product are regulated under various other Directives. It is therefore considered acceptable that the exposure during the production/formulation of the wood preservative JC-CTPI-3 is not considered here.

Exposure to the receiving environmental compartments such as soil, water and air, depends on the physical-chemical properties of the substance as well as its formulation type, mode of application, use and disposal.

2.2.8.1 Effects assessment on the environment

Fate and distribution in the environment of the active substances

A summary of the environmental behaviour of the active substances and their relevant metabolites is presented below. All the data are from Doc IIA as well as from Doc IIB for the active substances Cypermethrin, Tebuconazole, Propiconazole and IPBC.

Summary of the physic-chemical, environmental fate and behavior parameters for each active substance and their relevant metabolites used for the product environmental risk assessment.

Parameter / Variable	**Unit**	**Cypermethrin**	**Tebuconazole**	**Propiconazole**	**1,2,4-triazole(*)**	**IPBC**	**PBC(***)**	**Iodine(****)**
Molar mass	[g/mol]	416.3	307.8	342.2	69.1	281.1	155.2	253.81
Vapour pressure - Vp	[Pa]	2.3E-07	1.70E-06	5.6E-05	0.220	2.36E-03	1.88E+01	40.7
Water solubility – WS	[$mg.L^{-1}$]	4.00E-03	29	100	700	168	2860	290
K_{oc}	[$L.kg^{-1}$]	575 000	992	944	89	134.5	198.1	n.r.
DT_{50} (soil)	[d at 12°C]	17.2	77	82	114.7 (**)	1.96E-01	9.50	n.r.
DT_{50} (surface water – degradation + dissipation)	[d at 12°C]	0.95	43	12	n.r.	1.29E-01	31.2	n.r.
DT_{50} (aquatic – degradation only)	[d at 12°C]	18.5 (whole system)	198 (degradation in water)	1206 (whole system)	n.r.	2.04E-01	31.4	n.r.
BCF in fish	[$L.kg^{-1}$]	417	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.
BCF in earthworm	[$L.kg^{-1}$]	3380	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.
STP fraction								
$F_{STP, water}$	[-]	0.0915	0.89	0.9	n.r.	0.963	0.967	0.80
$F_{STP, sludge}$	[-]	0.61	0.109	0.1	n.r.	0.0364	0.0241	0.20

n.r. – Not relevant for the environmental risk assessement of the product

(*) – Relevant metabolite of tebuconazole and propiconazole in soil with a maximum of 9% and 43.23 % of applied radioactivity, respectively.

(**) – Calculated according to the arrehnius equation with a DT_{50} at 20°C of 60.5 days.

(***) – Relevant metabolite of IPBC in all environmental compartments assuming 100% of applied radioactivity.

(****) – Relevant metabolite of IPBC in all environmental compartments with a transformation rate in:

- Surface water – iodine to iodide 100% - iodine to iodate 100%
- Soil *via* the STP- iodine to iodide 14% - iodine to iodate 100%

Soil *via* direct release - iodine to iodide 100% - iodine to iodate 100%

Information relating to the ecotoxicity of the biocidal product which is sufficient to enable a decision to be made concerning the classification of the product is required

Effect on environmental organisms

The PNEC values for IPBC/PBC have been taken from the Assessment Report for PT 8 and also including updates in the Assessment Report for PT13 (January 2015). For Cypermethrin the PNEC values have been taken from the Assessment Report for PT18 (January 2017). For Tebuconazole the PNEC values have been taken from the Assessment Report for PT8 (November, 2007). For propiconazole/1,2,4-triazole the PNEC values have been taken from the Assessment Report for propiconazole in PT7 (January 2015), because new data has been included compared to the Assessment Report for propiconazole in PT8 (December 2007).

The PNEC values used in the risk assessment are the following:

Summary table on PNEC values for active substances and their relevant metabolites						
Active substance	**$PNEC_{water}$ [$mg.l^{-1}$]**	**$PNEC_{sediment}$ [$mg.kg^{-1}wwt$]**	**$PNEC_{soil}$ [$mg.kg^{-1}wwt$]**	**$PNEC_{STP}$ [$mg.l^{-1}$]**	**$PNEC_{oral.bird}$ [$mg.kg^{food}$]**	**$PNEC_{oral.mamma}$ [$mg.kg^{food}$]**
Tebuconazole	1.00E-03	5.50E-01	1.00E-01	3.20E-01	n.r.	n.r.
Propiconazole	6.80E-03	5.40E-02	1.00E-01	1.00E+02	n.r.	n.r.
IPBC	5.00E-04	Covered by surface water	4.40E-03	4.40E-01	n.r.	n.r.
Cypermethrin	4.00E-6	5.00E-2(1)	7.00E-02	1.63 E+00	3.33E+01	3.33E+00
1,2,4-triazole	n.r	n.r	8.20E-03(2)	n.r	n.r.	n.r.
PBC	4.13E-02	2.10E-01	1.49E-01	4.40E-01	n.r.	n.r.
Iodine/Iodate/Iodide	0.59 / 58.5 / 0.83 (µg iodine/L)	Covered by surface water	0.0118 / 0.304 /0.0043 (mg iodine/kg wwt)	2.90	n.r.	n.r.

n.r.: not relevant for the concerned compartment

(1) EPM-A factor of 10 has to be added to the PEC/PNEC ratios

(2) From AR (2015) Propiconazole (PT7).

Beside PBC and 1,2,4-triazole another transformation product from IPBC is iodine which is not a xenobiotic substance but an essential dietary trace element and is ubiquitously present in the environment. Because of iodine's natural presence in the environment, background values have to be taken into account in the environmental risk assessment. An overview on the background concentrations of iodine in the relevant environmental compartments is given in the table below. This has been taken from the Assessment Report for iodine (PT1,3,4,22), December 2013.

Background concentration of iodine in the environment	
Compartment	**Background level (as iodine)**

Soil	Typically 0.5 - 20 mg/kg dw but with extremes up to 98 mg/kg Global mean value of 5 mg/kg
Groundwater	Mean concentration: 1 µg/l Range: < 1-70 µg/l with extremes up to 400 µg/l
Freshwater (river and lake)	0.5 - 20 µg/l

Environmental classification of the product

Harmonised environmental classification of the active substances
The environmental classification of the active substances is the following:

Classification for the active substances			
Active substance	**Env. Classification**	**M-Factor**	**Concentration of a.s. in the product (%)**
Tebuconazole (1)	H400, H410	M=1 M(chronic)=10	0.30
Propiconazole (2)	H400, H410	M=1 M(chronic)=1	0.30
IPBC (3)	H400, H410	M=10 M(chronic)=1	0.30
Cypermethrin (4)	H400, H410	M=100000 M(chronic)=100000	0.175

(1) Current entry in Annex VI, CLP Regulation, ATP 7.
(2) Current entry in Annex VI, CLP Regulation, ATP13.
(3) Current entry in Annex VI, CLP Regulation, ATP6.
(4) No M-factor was shown in the harmonised classification, but the M-factor noted here is based on RAC Opinion. The proposed classification is Aquatic Acute 1, H400 with an acute M-factor of 100 000 and Aquatic Chronic 1, H410, with a chronic M-factor of 100 000

Environmental classification of the substance(s) of concern
The biocidal product does contain substances which influence the environmental classification so these substances are subtances of concern.

Classification for the substances of concern			
Component	**Env. Classification**	**M-Factor**	**Concentration of a.s. in the product (%)**
White Spirit	H411	-	>70

Environmental classification of the biocidal product
Regarding the ecotoxicological properties, the formulation is very toxic to aquatic organisms. According to Regulation (EC) No 1272/2008 the product is classified as Aquatic Acute 1 (H400: Very toxic to aquatic life)/Aquatic Chronic 1 (H410: Very toxic to aquatic life with long lasting effects) with the signal word "Warning".

Conclusion on the environmental classification and labelling of the product
Classification: Aquatic Acute cat. 1 (H400) Aquatic Chronic cat. 1 (H410) ***Labelling:*** Warning H410 ***Precautionary statements*** P273 – Avoid release to the environment P391 – Collect spillage P501 - Dispose of contents/container as hazardous waste to a registered establishment or undertaking, in accordance with current regulations

PBT-assessment:
According to the PT08-AR of tebuconazole (2007), tebuconazole does not fulfil the PBT nor the vPvB criteria. Nonetheless, the substance is candidate for substitution, as it fulfils the P and T criteria.
According to the PT07-AR of propiconazole (2015), propiconazole does not fulfil the PBT nor the vPvB criteria. Nonetheless, the substance fulfils the P criteria.
According to the PT18-AR of Cypermethrin (2017), Cypermethrin does not fulfil the PBT nor the vPvB criteria.
According to the PT13-AR of IPBC (2015), IPBC and PBC do not fulfil the PBT nor the vPvB criteria.

ED-assessment:
According to the PT08-AR of tebuconazole (2007), the PT07-AR of propiconazole (2015), the PT018-AR of Cypermethrin (2017), the PT13-AR of IPBC (2015) no definite conclusions can be drawn concerning the endocrine disruption activity of each active substance. Nevertheless, a number of scientific publications mention potential endocrine disruption activity of propiconazole , tebuconazole and IPBC. These effects will be assessed more in details at the renewal stage of these biocidal active substances approval in the frame of the EU Regulation No 528/2012 (scheduled in 2019), and according to the criteria mentioned in the *Guidance for the identification of endocrine disruptors in the context of Regulations (EU) No 528/2012 and (EC) No 1107/2009.* In case these active substances were identified as ED, the conditions for the product authorisation will have to be revised. According to our assessment, one of the coformulants contained in the biocidal product is identified as possible endocrine disruptor.

Please refer to Confidential Annex.

Further Ecotoxicological studies

The following studies have been submitted by the applicant with the formulated product JC-CPTI-3:

Fish, *Danio rerio*, acute toxicity test performed on the test item «JC-CTPI-3», according to the OECD 203 guideline

Test organism:
Danio rerio (Hamilton Buchanan)

Study description:
Accoding to the results of a preliminary test, the test was carried out with five concentrations: 51.0-71.4-100.0-140.0 and 196.0mg/L.

As the test item was not soluble in the dilution water according to the sponsor, a special solubilisation protocol was carried out before the experimentation. This method consisted in stirring each test item nominal concentration in the fish test medium during 24 hours then the test solutios was filtered through a membrane.
In order to verify the initial concentrations and maintenance of the exposure concnetrations of the test item during the ecotoxicological testing, chemical analyses of the cypermethrin as tracer in the fish test solutions were performed.

Validity criteria for the test:
All the validity criteria were successful except the concentrations maintaining 80-120%, not calculated.

Conclusion by the applicant:
EC_{50} at 96 hours is superior to the highest concentration 196.0 mg test item "JC-CTPI-3" /L. These values are expressed in nominal test item concentration.

ES-CA Conclusion: According to the guideline OECD 203 for the definitive test with fish, at least five concentrations in a geometric series with a factor preferably not exceeding 2.2 should be used, smaller separation factors of 1.6 to 1.8 should be used whenever posible. This test doesn´t specify the number of replicates. The conditions of the tests were in static and the concentrations were measured only for cypermethrin at the beginning of the test and at the end of the test. The concetrations of cypermethrin were not quatified in some of the samples because it was below the limit of the quantification (LOQ). Although a special solubilisation protocol was carried out the solubility of cypermethrin is very small (< 9µg/L (20ºC)), so the concentrations tested were very high where the a.s. was not soluble. Reliability: 4

***Daphnia magna*, acute immobilisation test performed on the test item «JC-CTPI-3», according to the OECD 202 guideline**

Test organism:
Daphnia magna Straus

Study description:
Accoding to the results of a preliminary test, the test was carried out with five concentrations: 2.0 - 4.4 - 9.7 - 21.3 - 46.9 and 103.2mg/L.
As the test item was not soluble in the dilution water according to the sponsor, a special solubilisation protocol was carried out before the experimentation. This method consisted in stirring each test item nominal concentration in the daphnia dilution water during 24 hours then the test solutios was filtered through a membrane.
In order to verify the initial concentrations and maintenance of the exposure concnetrations of the test item during the ecotoxicological testing, chemical analyses of the cypermethrin as tracer in the daphnid test solutions were performed.

Validity criteria for the test:
All the validity criteria were successful.

Conclusion by the applicant:
EC_{50} at 24 hours is superior to 103.2 mg test item "JC-CTPI-3" /L.
EC_{50} at 48 hours is 29.6 mg/L (17.3- 65.0) mg test Item "JC-CTPI-3" /L. (These values are expressed in nominal test item concentration).

ES-CA Conclusion: According to the guideline OECD 202 for the definitive test with *daphnia*, at least five concentrations in a geometric series with a factor preferably not exceeding 2.2 should be used. The conditions of the tests were in static and the concentrations were measured only for cypermethrin at the beginning of the test and at the end of the test. The concetrations of cypermethrin were not quatified in some of the samples because it was below the limit of the quantification (LOQ). Although a special solubilisation protocol was carried out the solubility of cypermethrin is very small (< 9µg/L (20ºC)), so the concentrations tested were very high where the a.s. was not soluble. Reliability: 4

Algae, growth inhibition test performed on the test item «JC-CTPI-3», according to the OECD 201 guideline

Test organism:
Pseudokirchneriella subcapitata

Study description:
According to the results of a preliminary test, the test was carried out with five concentrations: 1.0 - 3.2 -10.2 - 32.6 and 103.2mg/L.
As the test item was not soluble in the dilution water according to the sponsor, a special solubilisation protocol was carried out before the experimentation. This method consisted in stirring each test médium during 24 hours.
In order to verify the initial concentrations and maintenance of the exposure concentrations of the test item during the ecotoxicological testing, chemical analyses of the cypermethrin as tracer in the algae test solutions were performed.

Validity criteria for the test:
All the validity criteria were successful.

Conclusion by the applicant:
ErC50 (0-72h) = 45.50 (40.5- 51.5) mg test Item "JC-CTPI-3" /L.
EyC50 (0-72h) = 6.33 (5.6- 7.3) mg test Item "JC-CTPI-3" /L.
These values are expressed in nominal test Item concentration.

ES-CA Conclusion: According to the guideline OECD 201 for the definitive test with *Pseudokirchneriella subcapitata,* at least five concentrations in a geometric series with a factor preferably not exceeding 3.2 should be used. The concentrations were measured only for cypermethrin at the beginning of the test and at the end of the test. The concentrations of cypermethrin were not quatified in some of the samples because it was below the limit of the quantification (LOQ). Although a special solubilisation protocol was carried out the solubility of cypermethrin is very small (< 9µg/L (20ºC)), so the concentrations tested were very high where the a.s. was not soluble. Reliability: 4

Determination of the toxicity of the JC-CTPI-3 in terrestrial organisms (earthworms)

Test organism:
Eisenia foetida

Study description:
Test concentrations in mg producto/kg dry soil and spaced by a factor of 3: 12.35 – 37.05 – 111.15 – 333.45 – 1000.35 mg/kg. Test substance was solved in acetone at different concentrations and mixed with part of the sand. Once the acetone was evaporated the treated sand is mmixed with the

resto f the artificial soil and humidified as a whole. Lastly earthworms are incorporated on the Surface of the test soil.

Validity criteria for the test:
This test meets the validity condition established by the OECD 207 since the mortality of earthworms in the controls has not exceded 10% at the end of the test.

Conclusion by the applicant:
The concentration of the test substance JC-CTPI-3 which produces 50% mortality in the test organisms within the test period is above 1000 mg/kg; thus, according to the European document UN/SCEGHS/12/INF.5 (2006) which establishes toxicity classification criteria for terrestrial environment, the test substance JC-CTPI-3 cannot be classified as toxic for *Eisenia foetida.*

Determination of the toxicity of the JC-CTPI-3 in terrestrial organisms (plants)
Test organism:
Lactuca sativa

Study description:
The definitive test concentrations were chosen spaced by a factor of 1.9: 100 – 190 – 361 – 686 - 1303 mg/kg dry soil. Test subtance was solved in an acetone solution as carrier for substrate application. Four replicates with soil treated with only acetone and no test substance were used as a second control.

Validity criteria for the test:
• The seedling emergence is at least 70%: 36 seeds have emerged among 40 that were sown (90%).
• The control seedlings do not exhibit visible phytotoxic effects and the plants exhibit only normal variation in growth and morphology.
• The mean survival of emerged control seedlings is at least 90% for the duration of the study: there was no dead control plant.
• Environmental conditions are identical and growing media contain the same amount of substrate from the same source.

Furthermore, the acetone, used as a carrier for the test substance, has had no statistically significant influence in the test results.

Conclusion by the applicant:
According to the OECD Guideline No. 208, the endpoints measured to evaluate the test substance toxicity are seedlings emergence, shoot height and dry weight of the plants. The effect of the test substance in the plants has been determined as inhibition or reduction of this tree endpoints compared to the control plants not treated with the test substance. On the one hand, seedlings emergence is not proportionally related with the test substance concentration, however soot height and dry weight are reduced when increasing test substance concentration. Thus, the general tendency is that the greater test substance concentration on the substrate, the bigger effect in the plant biomass reduction.
Among the evaluated endpoints, the more affected by the test substance during the definitive test has been shoot dry weight. By statistical analysis, it has been determined that the concentration resulting in a reduction of 50% in the dry weight being measured relative to the control or EC_{50} would be 866 mg/kg dry soil, with a confidence interval at 95% probability of 373 mg/kg to 1359 mg/kg dry soil.

Therefore, based on these results and as stated in the European document UN/SCEGHS/12/INF.S (2006) which establishes toxicity classification criteria for terrestrial environment, it can be concluded that the test substance JC-CTPI-3 has a toxicity classified as Acute 3 for the plant species *Lactuca sativa*.

ES-CA: These tests were carried out according to the respective guidelines fulfilling with the validity criteria. However, analytical measurement of all active substances for the different concentration tested were not carried out. Reliability: 3.

These tests are not considered for the risk assessment.

Effects on any other specific, non-target organisms (flora and fauna) believed to be at risk (ADS)

No new data is available compared to CAR (see 2.2.8).

Supervised trials to assess risks to non-target organisms under field conditions

The product is not in the form of bait or granules, so none such data is required.

Studies on acceptance by ingestion of the biocidal product by any non-target organisms thought to be at risk

The product is not in the form of bait or granules, so none such data is required.***Secondary ecological effect e.g. when a large proportion of a specific habitat type is treated (ADS)***

Not relevant.

Foreseeable routes of entry into the environment on the basis of the use envisaged

***Industrial application of* the biocidal product and storage of the wood**

Emissions to the environment can occur during industrial application of the wood preservative and subsequent storage of the treated structures. In general, emissions to sewage water during applications in joineries and carpentry shops are not likely to occur, because treatment containers are stand-alone devices without direct connection to the sewage. Residues and waste solutions from application containers will be treated as special waste and will not be discharged into the public sewage system. The revised ESD for PT 8 confirms that the release of wood preservatives from treatment installations to the drain connected to an STP is not permitted in EU countries. Nevertheless, this scenario is going to be considered in this risk assessment. The same applies to the storage of treated commodities. According to the revised ESD for PT 8 it can be assumed, that most storage places are sealed and run-off from storage places will be collected and disposed of safely.

In-service life

Emissions may take place due to leaching from constructions built from industrially treated wood.
During the Arona Leaching Workshop in June 2005, it was agreed that a long-term assessment of in-service uses of wood should be carried out. For automated spraying and short dipping an assessment of cumulative leaching from treated wood in-service over a 15 years period was applied. For double vacuum an assessment of cumulative leaching from treated wood in-service over a 20 years period should be applied and for "In- situ" application an assessment of cumulative leaching

from treated wood in-service over a 5 years period was applied. Hence, the assessment times are 30 days (TIME 1) for short term consideration and 5, 15 or 20 years (service life) for the longer time period (TIME 3). A further TIME 2 value of 365 days is calculated as well (not used for decision making) as agreed by the Environment Working Group.

Please refer to section "Fate and distribution in exposed environmental compartment" for further details.

Further studies on fate and behaviour in the environment (ADS)

No new data was submitted or is required. Information on the active substances suffices for the environmental risk assessment of the product. Moreover, the product does not contain any other substances relevant for the environment apart from the active substance

Leaching behaviour (ADS)

The applicant performed a leaching test for JC-CTPI-3 which was performed according to Nordtest Method NT Build 509 "Leaching of active ingredients from preservative-treated timber- Semi-field testing" in order to estimate the leaching rate of active substances from the treated wood when wood is located outdoor at environmental conditions.

Treated and untreated wood (blank) were located in horizontal and vertical positions. In addition, the test differences between treated wood with coat and uncoated and between surface and deep treatment have also been established. Therefore, the following trials were developed:

- Surface treatment with coated – Horizontal exposure.
- Surface treatment with coated – Vertical exposure.
- Surface treatment without coated – Horizontal exposure.
- Surface treatment without coated – Vertical exposure.
- Deeping treatment without coated – Horizontal exposure.
- Deeping treatment without *coated – Vertical exposure.*

Step 1- Fitting of the experimental leaching rates

Q*leach, time values i.e. the cumulative quantities leached out of 1 m² of treated wood over 30 days and over 5, 15 and 20 years (default value for the duration of service life) are calculated based on the leaching study results.
Q*leach, time values are calculated according to the model described in the revised ESD, Appendix 2, i.e. by fitting the experimental FLUX (Δt) = f(t) curve using a polynomial regression of second order:

$$\log FLUX(t) = a + b*\log(t) + c*\log(t)^2$$

or, if the goodness of the fit is better, by fitting the cumulative quantities leached versus time plot using a first order decay curve:
$Q^*leach,time = a*\ln(t) + b$
or a linear regression:
$Q^*leach,time = a*t + b$

For each active substance the extrapolation with the best goodness of the fit, (with the r^2 value closest to 1) has been chosen, in this case has been selected the polynomial regression. This stepwise approach was recommended during the 2nd EU leaching Workshop.

Step 2 – Calculation of $Q^*_{leach,time}$ [kg/m²] for TIME1= 30days and $Q^*_{leach,time}$ [kg/m²] for TIME2 =365 days and TIME3= 5, 15 or 20 years.

Q*leach,time is defined as the cumulative quantity of an active ingredient (or any other substance of concern in a wood preservative formulation) leached out of 1 m^2 of treated wood over a certain time period of service, considered for assessment. This value can be estimated by the following equations:

$$Q^*_{leach,0-30} = \sum_{t=1day}^{30day} FLUX(t) + \frac{Q^{exp}_{leach,0-1}}{AREA^{exp}_{wood}}$$

Q*leach, time values obtained from an surface treatment at 300 g/m² and in-depth treatment at 40kg/m^3 with top coat for the four active substances for 30days and without coat for the rest of the periods (According to the conclusions of the 2nd EU Leaching Workshop on Wood Preservatives, if the studies for the same producto with and without topcoat are available, use the leaching rates from the study without top coat for TIME 3 if the calculated leaching rates from the study with top coat using AF exceed those from the study without topcoat) . The values are presented in the following tables.

Table 1.$Q^*_{leach,time}$ values obtained superficial treatment

Active substance		$Q^*_{leach,\ 30d}$ [mg/m²]	$Q^*_{leach,\ 365d}$ [mg/m²]	$Q^*_{leach,\ 1825d}$ [mg/m²]	$Q^*_{leach,\ 5475}$ [mg/m²]	$Q^*_{leach,\ 7300}$ [mg/m²]
Cypermethrin	Horizontal	0.51	82.82	106.50	127.18	133.52
	Vertical	0.08	23.10	25.09	25.65	25.74
Tebuconazole	Horizontal	1.38	278.25	309.96	322.29	324.57
	Vertical	0.40	61.60	63.87	64.16	64.18
Propiconazole	Horizontal	1.23	256.32	280.29	288.10	289.39
	Vertical	0.38	58.82	60.68	60.87	60.89
IPBC	Horizontal	1.01	230.92	254.71	263.25	264.76
	Vertical	0.32	52.35	54.35	54.62	54.65

Table 2. Q*leach,time values obtained deeping treatment

Active substance		$Q^*_{leach,\ 30d}$ [mg/m²]	$Q^*_{leach,\ 365d}$ [mg/m²]	$Q^*_{leach,\ 1825d}$ [mg/m²]	$Q^*_{leach,\ 5475}$ [mg/m²]	$Q^*_{leach,\ 7300}$ [mg/m²]
Cypermethrin	Horizontal	94.46	152.01	182.94	200.26	204.26
	Vertical	22.23	37.74	40.85	41.40	41.46
Tebuconazole	Horizontal	305.71	515.39	573.93	588.90	590.94

	Vertical	61.74	104.39	112.65	114.02	114.15
Propiconazole	Horizontal	265.08	462.80	515.27	527.52	529.07
	Vertical	63.05	105.64	113.31	114.48	114.59
IPBC	Horizontal	227.71	380.51	418.46	426.99	428.05
	Vertical	51.73	84.58	90.25	91.10	91.18

Step 3-Calculation of $FLUX_{storage}$ [$kg \cdot m^{-2} \cdot d^{-1}$]

The emissions from a storage place, where treated wood are shipped out off site in variable time intervals, are cumulative with the time. FLUXstorage can be calculated from the results of a leaching test as follows:

$$Q^{*}_{leach,0-3} = \sum_{t=1day}^{3day} FLUX(t) + \frac{Q^{exp}_{leach,0-1}}{AREA^{exp}_{wood}}$$

$$FLUX_{storage,spray} = \frac{Q^{*}_{leach,0-3}}{TIME_{storage}}$$

In order to prove cover all worse-cases, FLUXstorage has been estimated for 3, 14 and 35 days (without coat for horizontal exposure as worst case because the storage in horizontal position as the most realistic situation):

Table 3. $FLUX_{storage}$ **values obtained from superficial treatment**

Active substance		Values
Cypermethrin	$FLUX_{storage,3days}$	$8.99 \cdot 10^{-6}$
	$FLUX_{storage,14\ days}$	$3.17 \cdot 10^{-6}$
	$FLUX_{storage,35\ days}$	$1.56 \cdot 10^{-6}$
Tebuconazole	$FLUX_{storage,3days}$	$2.86 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$1.11 \cdot 10^{-5}$
	$FLUX_{storage,35\ days}$	$5.62 \cdot 10^{-6}$
Propiconazole	$FLUX_{storage,3days}$	$2.60 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$1.03 \cdot 10^{-5}$
	$FLUX_{storage,35\ days}$	$5.25 \cdot 10^{-6}$
IPBC	$FLUX_{storage,3days}$	$2.38 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$9.32 \cdot 10^{-6}$
	$FLUX_{storage,35\ days}$	$4.71 \cdot 10^{-6}$

Table 4. $FLUX_{storage}$ **values obtained from deeping treatment**

Active substance		Values
Cypermethrin	$FLUX_{storage,3days}$	$1.38 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$5.44 \cdot 10^{-6}$
	$FLUX_{storage,35\ days}$	$2.81 \cdot 10^{-6}$
Tebuconazole	$FLUX_{storage,3days}$	$3.28 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$1.63 \cdot 10^{-5}$
	$FLUX_{storage,35\ days}$	$9.19 \cdot 10^{-6}$
Propiconazole	$FLUX_{storage,3days}$	$2.60 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$6.43 \cdot 10^{-5}$
	$FLUX_{storage,35\ days}$	$9.33 \cdot 10^{-5}$
IPBC	$FLUX_{storage,3days}$	$2.37 \cdot 10^{-5}$
	$FLUX_{storage,14\ days}$	$1.21 \cdot 10^{-5}$
	$FLUX_{storage,35\ days}$	$6.85 \cdot 10^{-6}$

Testing for distribution and dissipation in soil (ADS)

No new data was submitted or is required

Testing for distribution and dissipation in water and sediment (ADS)

No new data was submitted or is required

Testing for distribution and dissipation in air (ADS)

No new data was submitted or is required.

If the biocidal product is to be sprayed near to surface waters then an overspray study may be required to assess risks to aquatic organisms or plants under field conditions (ADS)

No new data was submitted or is required

If the biocidal product is to be sprayed outside or if potential for large scale formation of dust is given then data on overspray behaviour may be required to assess risks to bees and non-target arthropods under field conditions (ADS)

No new data was submitted or is required

2.2.8.2 Exposure assessment

The environmental exposure assessments of the active substances were determined with the Emission Scenario Document (ESD) developed for Product Type 08 (wood preservatives) by OECD: OECD SERIES ON EMISSION SCENARIO DOCUMENTS, Number 2, Emission Scenario Document for

Wood Preservatives. The relevant exposure scenarios for each stage of the wood preservative life cycle have been summarised in the tables below.

- Industrial application and storage

The use of wood preservative JC-CTPI-3 in the industrial premises involves two life cycle stages: application and post-application storage. Three different methods of application are used: automated spraying, automated dipping and double vacuum.

Table 2.2.6.3.-1. Environmental exposure assessment scheme for industrial use.

Application use	**Treatment**	**Emission scenario**		**Compartment**
Preventive Industrial application	Automated spraying	Application		STP (facility drain)
		Leaching during horizontal storage (*)	Time 1 (initial, 30 days)	soil, Surfacewater
			Time 3 (longer, 15 years)	
	Automated dipping	Application		STP (facility drain)
		Leaching during horizontal storage (*)	Time 1 (initial, 30 days)	Soil, Surfacewater
			Time 3 (longer, 15 years)	
	DVacuum pressure	Application		STP (facility drain)
		Leaching during horizontal storage (*)	Time 1 (initial, 30 days)	soil, Surfacewater
			Time 3 (20 years)	

* Leaching data obtained from wood treated stored in horizontal position is considered the most realistic case (field leaching study Nº2990-3).

In several cases, treated wood is covered by a lacquer which lets the preservative product remain in treated wood for longer time. This situation has also been considered in the risk assessment following the field leaching study (Nº2990-3) performed with lacquered and unlacquered wood.

Interval times used to calculate the flux were: 3, 14 and 35 days for automatic spray, dipping and double vacuum respectively.

In addition, it is important to take in account that product doses used in field leaching tests are higher (300 g/m^2 for superficial treatments and 40 kg/m^3 for deeping treatment) than the intended doses claimed in the label for industrial applications. Therefore, actual leaching emissions are foreseeable to be lower than leaching values used in the exposure assessment.

- In-situ application

The product JC-CTPI-3 is intended to be used as wood preservative with preventive or curative treatment performed in situ by professionals and amateurs.
Evaluated scenarios following OECD guide are:

- House (brushing and spraying)
- Fence (brushing)
- Bridge (brushing)
- Pole (injection)

Brushing treatment is considered the principal method for in-situ applications in Europe. During this kind of application, product loses can occur by drip or accidental spills. In this sense and following the guide's recommendations, different emission fraction spill to the environment for amateur and professional user have been considered (0.3 for professional and 0.5 for amateur -worse case-).
In the following table, a summary of *in situ* applications is showed:

Table 2.2.6.3.-2. Scheme of environmental exposure assessment for *in-situ* application.

Application use	**Treatment**	**Emission scenario**	**Compartment**
Preventive and curative *in-situ* application by professional and amateur users	Brushing	Bridge	Surface water
	Brushing	Fence	Soil
	Brushing	House	Soil
	Spraying	House	Soil
	Injection	Pole	Soil

The following assumptions have been made when performing this exposure assessment:

- Leaching data considered as input values for all these exposure scenarios have been taken from the treated wood stored in vertical position as the most realistic situation, with the exception of the bridge scenario where the leaching data was taken from the treated wood stored in horizontal position.

- Leaching values were calculated based on an application rate of 300g/m^2 for surface treatment, so outcomes of this assessment is overestimating the actual exposure, considering the intended dose claimed in the commercial label (206-240 g/m^2).

- Service life

Apart from the application stage, service life should be also considered as an additional emission pathway to the environment. Environment emissions from treated wood are due to leaching process

during wood's service life. Table below summarises the relevant exposure scenario considered for this life cycle stage.

Table 2.2.6.3.-3. Scheme of environmental exposure assessment for service life wooden treated.

Application use	Treatment	Emission scenario		Compartment
SERVICE LIFE (Outdoor) This scenario takes in account preventive and curative uses	Leaching Wooden house	Time 1 (30 days)	Surface Industrial treatment	Soil
			Deep Industrial treatment	
			Surface *In situ* treatment	
		Time 2	Surface *In situ* treatment (5 years)*	
			Surface Industrial treatment (15 years)	
			Deep treatment (20 years)	
	Leaching Fence (brushed)	Time 1 (30 days)	Surface Industrial treatment	Soil
			Deep Industrial treatment	
			Surface *In situ* treatment	
		Time 2	Surface *In situ* treatment (5 years)*	
			Surface Industrial treatment (15 years)	
			Deep treatment (20 years)	
	Leaching Noise barrier	Time 1 (30 days)	Surface Industrial treatment	Soil, STP
			Deep Industrial treatment	
			Surface *In situ* treatment	
		Time 2	Surface *In situ* treatment (5 years)*	
			Surface Industrial treatment (15 years)	
			Deep treatment (20 years)	
	Leaching Bridge	Time 1 (30 days)	Surface Industrial treatment	Surface water
			Deep Industrial treatment	
			Surface *In situ* treatment	
		Time 2	Surface *In situ* treatment (5 years)*	
			Surface Industrial treatment (15 years)	
			Deep treatment (20 years)	

* Leaching data obtained from stored treated wood in vertical position in the field trial has been used as the most real case to estimate the service life emissions of house, fence and noise barrier

scenarios. On the other case, for the bridge and the wood industrially treated scenarios, leaching data from treated wood stored in horizontal position has been used as a worst-case.

The following assumptions have been made when performing this exposure assessment:
- When performing the service life exposure assessment, the estimated in-situ treatment (for brushed wood) should consider jointly with estimated emission during post-application time (leaching)
- Leaching emissions for service life have been calculated considering the recommended times from OECD (2013); 5 years for non-industrial surface treatments, 15 years for surface industrial treatments and 20 years for industrial deeping treatments.
- Wooden house is considered as the worst case for in-situ applications (OECD (2013)).

General information

Assessed PT	PT8
Assessed scenarios	Scenario 1: Industrial processes – automated spraying. Scenario 2: Industrial processes – short dipping. Scenario 3: Industrial processes –vacuum pressure. • Product application • Storage of treated wood prior to shipping Scenario 4: In-situ treatment for professional and amateur (curative and preventive)-brush. Scenario 5: In-situ treatment for professional and amateur (curative and preventive)-spray. Scenario 6: In-situ treatment for professional (curative)-injection. • Product application Scenario 7: In-service leaching from treated wood • House • Fence • Bridge over pond • Noise Barrier
ESD(s) used	Emission Scenario Document for Product Type 8: revised Emission Scenario Document for Wood Preservatives, (OECD 2013)
Approach	Average consumption
Distribution in the environment	Calculated based on Vol. IV, Part B
Groundwater simulation	A FOCUS-PEARL-4.4.4 groundwater modelling was performed for active substances and their relevant metabolites. In the modelling the house number of 16 per hectare and the fraction of house surface exposed to weather (0.5) were applied according to the revised OECD ESD for wood preservatives (2013).
Confidential Annexes	No
Life cycle steps assessed	Production: No Formulation No Use: Yes Service life: Yes
Remarks	The product is intended to be used for the UC 1, UC 2 and UC 3.

	According to the OECD ESD PT 08 no emission scenarios are available for UC 1 and UC 2, since the potential emissions from treated wood to the outer environment are considered negligible. Therefore, no emission and exposure calculation are performed for the UC 1 and UC 2.

Emission estimation

JC-CTPI-3 is a yellowish solvent-based liquid is a concentrate water-based wood preservative containing 0.175% Cypermethrin, 0.30% Tebuconazole, 0.30% Propiconazole and 0.30% IPBC.

Input parameters for calculating the local emission and concentration		
Input	**Value**	**Unit**
Application rate of biocidal product(superficial treatment -curative)	0.300	[$l.m^{-2}$]
Application rate of biocidal product (superficial treatment -preventive)	0.258	[$l.m^{-2}$]
Application rate of biocidal product (deeping treatment - preventive)	35	[kg/m^3]
First order rate constant for removal from soil (*k*) ($k=Ln2/DT_{50}$)		
Tebuconazole	0.009	[d^{-1}]
Propiconazole	0.009	[d^{-1}]
IPBC	3.540	[d^{-1}]
Cypermethrin	0.040	[d^{-1}]
Fraction released to facility drain ($F_{facilitydrain}$)		
Tebuconazole	0.003	[-]
Propiconazole	0.03	[-]
IPBC	0.03	[-]
Cypermethrin	0.0001	[-]
Fraction released to air (F_{air})		
Tebuconazole	0.001	[-]
Propiconazole	0.001	[-]
IPBC	0.001	[-]
Cypermethrin	0.001	[-]

Scenario 1: *Industrial processes – automated spraying*

The input parameters for calculating the local emission following an application by automated spraying process are presented in the following table.

Input parameters for calculating the local emission				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Application phase in automated spraying process				
Wood area treated per day (large plant)	$AREA_{wood\text{-}treated}$	20000*	[$m^2.d^{-1}$]	D
Application rate: quantity of a.i. applied per 1 m^2 of wood area	Q_{ai}	**See above**	[$kg.m^{-2}$]	S
Fraction released to facility drain	$F_{facilitydrain}$	**See above**	[--]	D
Fraction released to air	F_{air}	**See above**	[--]	D
Fraction of spray drift deposition	F_{drift}	0.001	[--]	D

D=default, S=based on information of applicant

*The $AREA_{wood\text{-}treated}$ of 20000 $m^2.d^{-1}$ (large plant) represents a worst case situation and is therefore used in this risk assessment.

- **Calculations**

The local emissions to air and facility drain during the day of application are calculated according to the equations 4.2 and 4.3 from the revised ESD PT8 as following:

Elocal,air= Qai . AREAwood-treated . (Fair + Fdrift)

Elocal,wastewater= Qai . AREAwood-treated . Fwastewater

The results are presented in the following table.

Resulting local emissions		
Active substance	**Local emission ($Elocal_{air}$) [$kg.d^{-1}$]**	**Local emission ($Elocal_{facilitydrain}$) [$kg.d^{-1}$]**
Tebuconazole	$2.47 \cdot 10^{-2}$	$3.71 \cdot 10^{-2}$
Propiconazole	$2.47 \cdot 10^{-2}$	$3.71 \cdot 10^{-1}$
IPBC	$2.47 \cdot 10^{-2}$	$3.71 \cdot 10^{-1}$
Cypermethrin	$1.44 \cdot 10^{-2}$	$7.20 \cdot 10^{-4}$

Storage phase

During storage, soil can be exposed – if the storage place is not covered – due to leaching from treated wood via rainfall. In addition, surface water can be exposed via rain run-off from the storage place.

The $AREA_{storage}$ of 790 m^2 (large plant) represents a worst case situation and is therefore used in this risk assessment.

The input parameters for calculating the local emissions and concentrations following leaching are presented in the following table.

Input parameters for calculating the local emissions and concentrations				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Storage phase in automated spraying process				
Effective surface area of treated wood, considered to be exposed to rain, per 1m^2 storage area (i.e. soil)	$AREA_{wood\text{-}expo}$	11	[$m^2.m^{-2}$]	D
Surface area of the storage place (large plant)	$AREA_{storage}$	790	[m^2]	D
Duration of the initial assessment period	*TIME1*	30	[d]	D
Duration of a longer assessment period	*TIME2*	7300	[d]	D
Duration of storage of treated wood prior to shipment	$TIME_{storage}$	3	[d]	D
Average daily flux i.e. the average quantity of an active ingredient that is daily leached out of 1 m^2 of treated wood during 3 days storage period [$kg.m^{-2}.d^{-1}$]	$FLUX_{storage,spray}$	**See above**	[$kg.m^{-2}.d^{-1}$]	S
Volume of treated wood stacked per m^2 of storage area (i.e. soil)	$VOLUME_{wood\text{-}stacked}$	2	[$m^3.m^{-2}$]	D
Bulk density of wet soil	RHO_{soil}	1700	[$kg.m^{-3}$]	D
Soil depth	$DEPTH_{soil}$	0.5	[m]	D
Volume of (wet) soil	V_{soil}	395	[m^3]	D
Fraction of rainwater running off the storage site	F_{runoff}	0.5	[-]	D

D=default, S=based on information of applicant

- **Calculations**

The cumulative quantities of substance leached over 30 days and 7300 days ($Q_{leach,storage,time}$) are calculated according to the equations 4.5 and 4.6 from the revised ESD PT8 as following:

Qleach,storage,time1 = FLUXstorage,spray . AREAwood-expo . AREAstorage . TIME 1

Qleach,storage,time2 = FLUXstorage,spray . AREAwood-expo . AREAstorage . TIME 2

The local emissions to surface water during the storage phase are calculated according to the equation 4.9 and 4.10 from the revised ESD PT8 as following:

Elocal,surfacewater,time1 = Qleach,storage time1 . Frunoff / TIME 1

Elocal,surfacewater,time2 = Qleach,storage time2 . Frunoff / TIME 2

The local concentrations into the soil and the surface water are calculated according to the equations 4.7/4.8/4.11/4.12 from the revised ESD PT8 as following:

Clocal,surfacewater,time 1 = Elocal,surfacewater,time1 / FLOWsurfacewater

Clocal,surfacewater,time 2 = Elocal,surfacewater,time2 / FLOWsurfacewater

Clocal,soil,time 1 = Qleach,storage,time1 . (1 – Frunoff) / Vsoil . RHOsoil

Clocal,soil,time 2 = Qleach,storage,time2 . (1 – Frunoff) / Vsoil . RHOsoil

The results are presented in the following table (without considering removal processes).

Resulting cumulative quantity of substance leached		
Active substance	**cumulative quantity of substance leached over 30 days TIME 1 [kg]**	**cumulative quantity of substance leached after 20 years TIME 2 [kg]**
Tebuconazole	7.46	$1.81 \cdot 10^{3}$
Propiconazole	6.78	$1.65 \cdot 10^{3}$
IPBC	6.20	$1.51 \cdot 10^{3}$
Cypermethrin	2.34	$5.70 \cdot 10^{2}$

Resulting local emissions to surface water compartment		
Active substance	**Local emission due to leaching after 30 days TIME 1 [kg.d^{-1}]**	**Local emission due to leaching after 20 years TIME 2 [kg.d^{-1}]**
Tebuconazole	$1.24 \cdot 10^{-1}$	$1.24 \cdot 10^{-1}$
Propiconazole	$1.13 \cdot 10^{-1}$	$1.13 \cdot 10^{-1}$
IPBC	$1.03 \cdot 10^{-1}$	$1.03 \cdot 10^{-1}$
Cypermethrin	$3.91 \cdot 10^{-2}$	$3.91 \cdot 10^{-2}$

Resulting local concentrations to surface water compartment		
Active substance	**Local concentration into surface water after 30 days TIME 1[mg.l^{-1}]**	**Local concentration into surface water after 20 years TIME 2 [mg.l^{-1}]**
Tebuconazole	$4.79 \cdot 10^{-3}$	$4.79 \cdot 10^{-3}$
Propiconazole	$4.36 \cdot 10^{-3}$	$4.36 \cdot 10^{-3}$
IPBC	$3.99 \cdot 10^{-3}$	$3.99 \cdot 10^{-3}$
Cypermethrin	$1.51 \cdot 10^{-3}$	$1.51 \cdot 10^{-3}$

Resulting local concentrations to soil compartment		
Active substance	**Local concentration in soil after 30 days TIME 1[kg.kg$_{wwt}^{-1}$]**	**Local concentration in soil after 20 years TIME 2 [kg.kg$_{wwt}^{-1}$]**
Tebuconazole	$5.55 \cdot 10^{-6}$	$1.35 \cdot 10^{-3}$
Propiconazole	$5.05 \cdot 10^{-6}$	$1.23 \cdot 10^{-3}$
IPBC	$4.62 \cdot 10^{-6}$	$1.12 \cdot 10^{-3}$
Cypermethrin	$1.75 \cdot 10^{-6}$	$4.25 \cdot 10^{-4}$

Scenario 2: *Industrial processes – short dipping*

The input parameters for calculating the local emission following an application by short dipping process are presented in the following table.

Input parameters for calculating the local emission				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Application phase in short dipping process				
Volume of wood treated per day	$VOLUME_{wood\text{-}treated}$	100	[$m^3.d^{-1}$]	D
Application rate: quantity of a.i. applied per 1 m^3 of wood	Q_{ai}	**See values in table above * 40**	[$kg.m^{-3}$]	S
Fraction released to facility drain	$F_{wastewater}$	**See above**	[--]	D
Fraction released to air	F_{air}	**See above**	[--]	D

D=default, S=based on information of applicant

- **Calculations**

The local emissions to air and facility drain during the day of application are calculated according to the equations 4.14 and 4.15 from the revised ESD PT8 as following:

Elocal,air= Qai . VOLUMEwood-product . Fair

Elocal,wastewater= Qai . VOLUMEwood-product . $F_{wastewater}$

The results are presented in the following table.

Resulting local emissions		
Active substance	**Local emission (Elocal$_{air}$) [kg.d^{-1}]**	**Local emission (Elocal$_{wastewater}$) [kg.d^{-1}]**
Tebuconazole	$2.47 \cdot 10^{-3}$	$7.42 \cdot 10^{-3}$
Propiconazole	$2.47 \cdot 10^{-3}$	$7.42 \cdot 10^{-2}$
IPBC	$2.47 \cdot 10^{-3}$	$7.42 \cdot 10^{-2}$

Cypermethrin	$1.44 \cdot 10^{-3}$	$1.44 \cdot 10^{-4}$

Storage phase

The input parameters for calculating the local emissions and concentrations following leaching are presented in the following table.

Input parameters for calculating the local emissions and concentrations				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Storage phase in short dipping process				
Effective surface area of treated wood, considered to be exposed to rain, per $1m^2$ storage area (i.e. soil)	$AREA_{wood\text{-}expo}$	11	$[m^2.m^{-2}]$	D
Surface area of the storage place	$AREA_{storage}$	700	$[m^2]$	D
Duration of the initial assessment period	*TIME1*	30	[d]	D
Duration of a longer assessment period	*TIME2*	7300	[d]	D
Duration of storage of treated wood prior to shipment	$TIME_{storage}$	14	[d]	D
Average daily flux i.e. the average quantity of an active ingredient that is daily leached out of 1 m^2 of treated wood during 14 days storage period	$FLUX_{storage,dipp}$	**See above**	$[kg.m^{-2}.d^{-1}]$	S
Bulk density of wet soil	RHO_{soil}	1700	$[kg.m^{-3}]$	D
Soil depth	$DEPTH_{soil}$	0.5	[m]	D
Volume of (wet) soil	V_{soil}	350	$[m^3]$	D
Fraction of rainwater running off the storage site	F_{runoff}	0.5	[-]	D

D=default, S=based on information of applicant

- **Calculations**

The cumulative quantities of substance leached over 30 days and 7300 days ($Q_{leach,storage,time}$) are calculated according to the equations 4.17 and 4.18 from the revised ESD PT8 as following:

Qleach,storage,time1 = FLUXstorage,dip . AREAwood-expo . AREAstorage . TIME 1

Qleach,storage,time2 = FLUXstorage,dip . AREAwood-expo . AREAstorage . TIME 2

The local emissions to surface water during the storage phase are calculated according to the equations 4.21 and 4.22 from the revised ESD PT8 as following:

Elocal,surfacewater,time1 = Qleach,storage time1 . Frunoff / TIME 1

Elocal,surfacewater,time2 = Qleach,storage time2 . Frunoff / TIME 2

The local concentrations into the soil and the surface water are calculated according to the equations 4.19/4.20/4.23/4.24 from the revised ESD PT8 as following:

Clocal,surfacewater,time 1 = Elocal,surfacewater,time1 / FLOWsurfacewater

Clocal,surfacewater,time 2 = Elocal,surfacewater,time2 / FLOWsurfacewater

Clocal,soil,time 1 = Qleach,storage,time1 . (1 – Frunoff) / Vsoil . RHOsoil

Clocal,soil,time 2 = Qleach,storage,time2 . (1 – Frunoff) / Vsoil . RHOsoil

The results are presented in the following table (without considering removal processes).

Resulting cumulative quantity of substance leached		
Active substance	**cumulative quantity of substance leached over 30 days TIME 1 [kg]**	**cumulative quantity of substance leached after 20 years TIME 2 [kg]**
Tebuconazole	2.56	$6.24 \cdot 10^{2}$
Propiconazole	2.38	$5.79 \cdot 10^{2}$
IPBC	2.15	$5.24 \cdot 10^{2}$
Cypermethrin	0.73	$1.78 \cdot 10^{2}$

Resulting local emissions to surface water compartment		
Active substance	**Local emission due to leaching after 30 days TIME 1 [kg.d^{-1}]**	**Local emission due to leaching after 20 years TIME 2 [kg.d^{-1}]**
Tebuconazole	$4.27 \cdot 10^{-2}$	$4.27 \cdot 10^{-2}$
Propiconazole	$3.97 \cdot 10^{-2}$	$3.97 \cdot 10^{-2}$
IPBC	$3.59 \cdot 10^{-2}$	$3.59 \cdot 10^{-2}$
Cypermethrin	$1.22 \cdot 10^{-2}$	$1.22 \cdot 10^{-2}$

Resulting local concentrations to water compartment		
Active substance	**Local concentration into surface water after 30 days TIME 1[mg.l^{-1}]**	**Local concentration into surface water after 20 years TIME 2 [mg.l^{-1}]**
Tebuconazole	$1.65 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$
Propiconazole	$1.53 \cdot 10^{-3}$	$1.53 \cdot 10^{-3}$
IPBC	$1.38 \cdot 10^{-3}$	$1.38 \cdot 10^{-3}$
Cypermethrin	$4.71 \cdot 10^{-4}$	$4.71 \cdot 10^{-4}$

Resulting local concentrations to soil compartment		
Active substance	**Local concentration in soil after 30 days TIME 1[$kg.kg_{wwt}^{-1}$]**	**Local concentration in soil after 20 years TIME 2 [$kg.kg_{wwt}^{-1}$]**
Tebuconazole	$2.15 \cdot 10^{-6}$	$5.24 \cdot 10^{-4}$
Propiconazole	$2.00 \cdot 10^{-6}$	$4.87 \cdot 10^{-4}$
IPBC	$1.81 \cdot 10^{-6}$	$4.40 \cdot 10^{-4}$
Cypermethrin	$6.15 \cdot 10^{-7}$	$1.50 \cdot 10^{-4}$

Scenario 3: *Industrial processes –vacuum pressure*

Product application

The input parameters for calculating the local emission following an application by short dipping process are presented in the following table.

Input parameters for calculating the local emission				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Application phase in double vaccum process				
Volume of wood treated per day	$VOLUME_{wood\text{-}treated}$	130	[$m^3.d^{-1}$]	D
Application rate: quantity of a.i. applied per 1 m^3 of wood	Q_{ai}	**See above**	[$kg.m^{-3}$]	S
Fraction released to facility drain	$F_{wastewater}$	**See above**	[--]	D
Fraction released to air	F_{air}	**See above**	[--]	D

- **Calculations**

The local emissions to air and facility drain during the day of application are calculated according to the equations 4.26 and 4.27 from the revised ESD PT8 as following:

Elocal,air= Qai . VOLUMEwood-product . Fair

Elocal,wastewater= Qai . VOLUMEwood-product . $F_{wastewater}$

The results are presented in the following table.

Active substance	**Local emission ($Elocal_{air}$) [$kg.d^{-1}$]**	**Local emission ($Elocal_{wastewater}$) [$kg.d^{-1}$]**
Tebuconazole	$3.15 \cdot 10^{-3}$	$9.45 \cdot 10^{-3}$
Propiconazole	$13.15 \cdot 10^{-3}$	$49.45 \cdot 10^{-2}$

IPBC	$3.15 \cdot 10^{-3}$	$9.45 \cdot 10^{-2}$
Cypermethrin	$1.84 \cdot 10^{-3}$	$91.84 \cdot 10^{-4}$

Storage phase

The input parameters for calculating the local emissions and concentrations following leaching are presented in the following table.

Input parameters for calculating the local emissions and concentrations				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Storage phase in double vaccum process				
Effective surface area of treated wood, considered to be exposed to rain, per $1m^2$ storage area (i.e. soil)	$AREA_{wood\text{-}expo}$	11	$[m^2.m^{-2}]$	D
Surface area of the storage place	$AREA_{storage}$	2525	$[m^2]$	D
Duration of the initial assessment period	*TIME1*	30	[d]	D
Duration of a longer assessment period	*TIME2*	7300	[d]	D
Duration of storage of treated wood prior to shipment	$TIME_{storage}$	14	[d]	D
Average daily flux i.e. the average quantity of an active ingredient that is daily leached out of 1 m^2 of treated wood during 14 days storage period	$FLUX_{storage,dipp}$	**See above**	$[kg.m^{-2}.d^{-1}]$	S
Bulk density of wet soil	RHO_{soil}	1700	$[kg.m^{-3}]$	D
Soil depth	$DEPTH_{soil}$	0.5	[m]	D
Volume of (wet) soil	V_{soil}	350	$[m^3]$	D
Fraction of rainwater running off the storage site	F_{runoff}	0.5	[-]	D

- **Calculations**

The cumulative quantities of substance leached over 30 days and 7300 days ($Q_{leach,storage,time}$) are calculated according to the equations 4.29 and 4.30 from the revised ESD PT8 as following:

Qleach,storage,time1 = FLUXstorage,vac-pres . AREAwood-expo . AREAstorage . TIME 1

Qleach,storage,time2 = FLUXstorage,vac-pres . AREAwood-expo . AREAstorage . TIME 2

The local emissions to surface water during the storage phase are calculated according to the equations 4.33 and 4.34 from the revised ESD PT8 as following:

Elocal,surfacewater,time1 = Qleach,storage time1 . Frunoff / TIME 1

Elocal,surfacewater,time2 = Qleach,storage time2 . Frunoff / TIME 2

The local concentrations into the soil and the surface water are calculated according to the equations 4.31/4.32/4.35/4.36 from the revised ESD PT8 as following:

Clocal,surfacewater,time 1 = Elocal,surfacewater,time1 / FLOWsurfacewater

Clocal,surfacewater,time 2 = Elocal,surfacewater,time2 / FLOWsurfacewater

Clocal,soil,time 1 = Qleach,storage,time1 . (1 – Frunoff) / Vsoil . RHOsoil

Clocal,soil,time 2 = Qleach,storage,time2 . (1 – Frunoff) / Vsoil . RHOsoil

The results are presented in the following table (without considering removal processes).

Active substance	cumulative quantity of substance leached over 30 days TIME 1 [kg]	cumulative quantity of substance leached after 20 years TIME 2 [kg]
Tebuconazole	2.82	$6.87 \cdot 10^{+2}$
Propiconazole	11.10	$2.71 \cdot 10^{+3}$
IPBC	12.10	$5.10 \cdot 10^{+2}$
Cypermethrin	$49.42 \cdot 10^{-1}$	$2.29 \cdot 10^{+2}$

Active substance	Local emission due to leaching after 30 days TIME 1 [$kg.d^{-1}$]	Local emission due to leaching after 20 years TIME 2 [$kg.d^{-1}$]
Tebuconazole	$4.71 \cdot 10^{-2}$	$4.71 \cdot 10^{-2}$
Propiconazole	$1.86 \cdot 10^{-1}$	$1.86 \cdot 10^{-1}$
IPBC	$13.49 \cdot 10^{-2}$	$13.49 \cdot 10^{-2}$
Cypermethrin	$1.57 \cdot 10^{-2}$	$71.57 \cdot 10^{-2}$

Active substance	Local concentration into surface water after 30 days TIME 1[$mg.l^{-1}$]	Local concentration into surface water after 20 years TIME 2 [$mg.l^{-1}$]
Tebuconazole	$1.82 \cdot 10^{-3}$	$1.82 \cdot 10^{-3}$
Propiconazole	$7.16 \cdot 10^{-3}$	$7.16 \cdot 10^{-3}$
IPBC	$61.35 \cdot 10^{-3}$	$61.35 \cdot 10^{-3}$
Cypermethrin	$36.06 \cdot 10^{-4}$	$36.06 \cdot 10^{-4}$

Active substance	Local concentration in soil after 30 days TIME 1[$kg.kg_{wwt}^{-1}$]	Local concentration in soil after 20 years TIME 2 [$kg.kg_{wwt}^{-1}$]
Tebuconazole	$3.16 \cdot 10^{-6}$	$7.70 \cdot 10^{-4}$
Propiconazole	$1.25 \cdot 10^{-5}$	$3.04 \cdot 10^{-3}$
IPBC	$2.35 \cdot 10^{-6}$	$5.72 \cdot 10^{-4}$
Cypermethrin	$1.06 \cdot 10^{-6}$	$2.57 \cdot 10^{-4}$

Scenario 4: *In-situ treatment for professional and amateur (curative and preventive)-brushing*

Input parameters for calculating the local emission and concentration					
Input		**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Application – House scenario, fence and bridge					
Treated wood area	House	$AREA_{house}$	125	$[m^2 \cdot d^{-1}]$	D
	Fence		2		
	Bridge over pond		10		
Application rate of the product		$Q_{applic,product}$	**See above**		S
Content of a substance in product		f_{ai}	**See above**		S
Density of product		$RHO_{product}$	797	$[kg.m^{-3}]$	S
Fraction of product lost to soil/water during application	Professional	$F_{soil,brush}$ / $F_{water,brush}$	0.03		D
	Amateur		0.05		
(wet) soil volume	House	V_{soil}	13	$[m^3]$	D
	Fence		0.25		
Water volumen under bridge		V_{water}	1000	$[m^3]$	D
Bulk density of wet soil		RHO_{soil}	1700	$[kg_{wwt}.m^{-3}]$	D

- **Calculations**

The local emissions to soil during the day of application are calculated according to the equations 4.37 and 4.39 and the concentration in local soil according to the equations 4.38 and 4.40 from the revised ESD PT8 as following:

$\mathbf{E_{soil,brush\_house}} = AREA_{house} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{soil,brush} * 10^{-3}$
$\mathbf{Clocal_{soil,brush\_house}} = E_{soil,brush\_house} * 10^6 / (V_{soil} * RHO_{soil})$

$\mathbf{E_{soil,brush\_fence}} = AREA_{fence} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{soil,brush} * 10^{-3}$
$\mathbf{Clocal_{soil,brush\_fence}} = E_{soil,brush\_fence} * 10^6 / (V_{soil} * RHO_{soil})$

In the case of bridge over pond the primary receiveing environmental compartment is considered to be a static surface water. So, the emision of substance and the local concentration to water during the day of application are calculated according to equations 4.41 and 4.42 from the revised ESD PT8 as following:

$\mathbf{E_{water,brush\_bridge}} = AREA_{bridge} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{water,brush} * 10^{-3}$
$\mathbf{Clocal_{water,brush\_bridge}} = E_{water,brush\_bridge} * 1000 / V_{water}$

The results are presented in the following table:

Output House scenario				
Active substance	Concentration in local soil at the end of the day of application [mg· kg_{wwt}]-Preventive		Concentration in local soil at the end of the day of application [mg· kg_{wwt}]-Curative	
	Professional	Non-professional	Professional	Non-professional
Tebuconazole	$1.05 \cdot 10^{-1}$	$1.74 \cdot 10^{-1}$	$1.22 \cdot 10^{-1}$	$2.03 \cdot 10^{-1}$
Propiconazole	$1.05 \cdot 10^{-1}$	$1.74 \cdot 10^{-1}$	$1.22 \cdot 10^{-1}$	$2.03 \cdot 10^{-1}$
IPBC	$1.05 \cdot 10^{-1}$	$1.74 \cdot 10^{-1}$	$1.22 \cdot 10^{-1}$	$2.03 \cdot 10^{-1}$
Cypermethrin	$6.11 \cdot 10^{-2}$	$1.02 \cdot 10^{-1}$	$7.10 \cdot 10^{-2}$	$1.18 \cdot 10^{-1}$
Output Fence scenario				
Tebuconazole	$8.71 \cdot 10^{-2}$	$1.45 \cdot 10^{-1}$	$1.01 \cdot 10^{-1}$	$1.69 \cdot 10^{-1}$
Propiconazole	$8.71 \cdot 10^{-2}$	$1.45 \cdot 10^{-1}$	$1.01 \cdot 10^{-1}$	$1.69 \cdot 10^{-1}$
IPBC	$8.71 \cdot 10^{-2}$	$1.45 \cdot 10^{-1}$	$1.01 \cdot 10^{-1}$	$1.69 \cdot 10^{-1}$
Cypermethrin	$5.08 \cdot 10^{-2}$	$8.47 \cdot 10^{-2}$	$5.91 \cdot 10^{-2}$	$9.85 \cdot 10^{-2}$

Output Bridge over pond scenario				
Active substance	Concentration in local water at the end of the day of application [mg· l^{-1}]-Preventive		Concentration in local water at the end of the day of application [mg· l^{-1}]-Curative	
Tebuconazole	$1.85 \cdot 10^{-4}$	$3.08 \cdot 10^{-4}$	$2.15 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$
Propiconazole	$1.85 \cdot 10^{-4}$	$3.08 \cdot 10^{-4}$	$2.15 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$
IPBC	$1.85 \cdot 10^{-4}$	$3.08 \cdot 10^{-4}$	$2.15 \cdot 10^{-4}$	$3.59 \cdot 10^{-4}$
Cypermethrin	$1.08 \cdot 10^{-4}$	$1.80 \cdot 10^{-4}$	$1.26 \cdot 10^{-4}$	$2.09 \cdot 10^{-4}$

Scenario 5: *In-situ treatment for professional only for a house (curative and preventive)-spray*

Input parameters for calculating the local emission and concentration				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Application – House scenario, fence and bridge				
Treated wood area-House	$AREA_{house}$	125	$[m^2 \cdot d^{-1}]$	D

Application rate of the product	$Q_{applic,product}$	**See above**		S
Content of a substance in product	f_{ai}	**See above**		S
Density of product	$RHO_{product}$	797	[$kg.m^{-3}$]	S
Fraction of product lost to soil during application by spray drift	F_{drift}	0.1		D
Fraction of product lost to soil during application by run-off	$F_{run-off}$	0.2		D
Fraction of spray drift depositing to a 0.5 m wide soil band 1-1.5m distant from the house (tier 2)	F_{dep}	0.33		D
Run-off: soil volume adjacent to treated surface Drift: volume to which deposition occurs in tier 1	$V_{soil,runoff}$ $V_{soil,drift-tier1}$	13	[m^3]	D
Drift: volume to which deposition occurs in tier 2	$Vs_{oil,drift-tier2}$	15	[m^3]	D

- **Calculations**

The local emissions to soil during the day of application are calculated according to the equations 4.114, 4.115, 4.116 and the concentration in local soil according to the equations 4.117, 4.118, 4.119, 4.120 and 4.121 from the revised ESD PT8 as following:

$E_{soil,runoff} = AREA_{house} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{runoff} * 10^3$

$E_{soil,spray\_drift,tier1} = AREA_{house} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{drift} * 10^3$

$E_{soil,spray\_drift,tier2} = AREA_{house} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{drift} * 10^3 * F_{dep}$

$C_{localsoil,runoff} = E_{soil,runoff} / (V_{soil,runoff}$ or $V_{soil,drift-tier1} * RHO_{soil})$

$C_{localsoil,spray\_drift,tier1} = E_{soil,spray\_drift,tier1} / (V_{soil,drift-tier1} * RHO_{soil})$

$C_{localsoil,spray\_drift,tier2} = E_{soil,spray\_drift,tier2} / (V_{soil,drift-tier2} * RHO_{soil})$

$C_{localsoil,applic\_tier1} = C_{localsoil,runoff} + C_{localsoil,spray\_drift,tier1}$

$C_{localsoil,applic\_tier2} = C_{localsoil,spray\_drift,tier2}$

Active substance	**Concentration in local soil at the end of the day of application due to run-off [mg.kgwwt^{-1}]**	**Concentration in local soil at the end of the day of application due to spray drift - tier 1 [mg.kgwwt^{-1}]**	**Concentration in local soil at the end of the day of application due to spray drift - tier 2 [mg.kgwwt^{-1}]**	**Total concentration in local soil at the end of the day of application due to spray drift and run-off [mg.kgwwt^{-1}]**
Preventive				
Tebuconazole	$6.98 \cdot 10^{-1}$	$3.49E \cdot 10^{-1}$	$9.98 \cdot 10^{-2}$	1.15
Propiconazole	$6.98 \cdot 10^{-1}$	$3.49E \cdot 10^{-1}$	$9.98 \cdot 10^{-2}$	1.15
IPBC	$6.98 \cdot 10^{-1}$	$3.49E \cdot 10^{-1}$	$9.98 \cdot 10^{-2}$	1.15
Cypermethrin	$4.07 \cdot 10^{-1}$	$2.04 \cdot 10^{-1}$	$5.82 \cdot 10^{-2}$	$6.69 \cdot 10^{-1}$

Curative				
Tebuconazole	$8.11 \cdot 10^{-1}$	$4.06 \cdot 10^{-1}$	$1.16 \cdot 10^{-1}$	1.33
Propiconazole	$8.11 \cdot 10^{-1}$	$4.06 \cdot 10^{-1}$	$1.16 \cdot 10^{-1}$	1.33
IPBC	$8.11 \cdot 10^{-1}$	$4.06 \cdot 10^{-1}$	$1.16 \cdot 10^{-1}$	1.33
Cypermethrin	$4.73 \cdot 10^{-1}$	$2.37 \cdot 10^{-1}$	$6.77 \cdot 10^{-2}$	$7.78 \cdot 10^{-1}$

Scenario 6: *In-situ treatment for professional (only curative)-injection*

Input parameters for calculating the local emission and concentration				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Application – Pole				
Treated wood area	$AREA_{house}$	0.8	$[m^2 \cdot d^{-1}]$	D
Application rate of the product	$Q_{applic,product}$	**See above**		S
Content of a substance in product	f_{ai}	**See above**		S
Density of product	$RHO_{product}$	797	$[kg.m^{-3}]$	S
Fraction of producto lost/emitted during application due to dripping	$F_{soil,inj}$	0.05		D
Bulk density of wet soil	RHO_{soil}	1700	$[kg_{wwt}.m^{-3}]$	D

- **Calculations**

The local emissions to soil during the day of application are calculated according to the equation 4.88 and the concentration in local soil according to the equation 4.89 from the revised ESD PT8 as following:

$\mathbf{E_{soil,\ inj}} = AREA_{pole} * Q_{applic,product} * f_{ai} * RHO_{product} * F_{soil,inj} * 10^{-3}$
$\mathbf{Clocal_{soil,inj}} = E_{soil,inj\_pole} * 10^6 / (V_{soil} * RHO_{soil})$

Active substance	Emisión of substance during application $[mg \cdot d^{-1}]$	Concentration in local soil at the end of the day of application $[mg \cdot kg_{wwt}]$
Tebuconazole	$2.87 \cdot 10^{+1}$	$5.68 \cdot 10^{-3}$
Propiconazole	$2.87 \cdot 10^{+1}$	$5.68 \cdot 10^{-3}$
IPBC	$2.87 \cdot 10^{+1}$	$5.68 \cdot 10^{-3}$
Cypermethrin	$1.67 \cdot 10^{+1}$	$3.31 \cdot 10^{-3}$

Scenario 7: *In-service leaching from treated wood*
During service life of UC 3 treated wood, emission into the environment can occur due to leaching of active substances out of the wood due to rainfall.

Emissions due to leaching of the active substances out of the wood may occur into the soil, the surface water and into the Sewage Treatment Plant (STP) after run-off.
The calculated concentrations (Clocal) in the receiving environmental compartments represent the concentration at the end of the assessment time period taking into account removal processes of the substance from the receiving compartment for example due to degradation, volatilisation, or leaching to groundwater.

House

The input parameters for calculating the local emission and concentration into the soil following leaching are presented in the following table.

Input parameters for calculating the local emission and concentration					
Input	**Nomenclature**		**Value**	**Unit**	**Remarks**
Scenario: Service life – House scenario					
Treated wood area	$AREA_{house}$		125	[m^2]	D
Duration of the initial assessment period	*TIME1*		30	[d]	D
Duration of the long-term assessment period	*TIME2*	Surface *In situ* treatment	1825	[d]	D
		Surface Industrial treatment	5475		
		Deep Industrial treatment	7300		
Cumulative quantity of substance leached out of 1 m^2 of treated wood over the initial assessment period	$Q^*_{leach,time1}$		**See above**	[$kg.m^{-2}$]	S
Cumulative quantity of substance leached out of 1 m^2 of treated wood over a longer assessment period	$Q^*_{leach,time2}$		**See above**	[$kg.m^{-2}$]	S
(wet) soil volume	V_{soil}		13	[m^3]	D
Bulk density of wet soil	RHO_{soil}		1700	[$kg_{wwt}.m^{-3}$]	D
First order rate constant for removal from soil	*k*		**See above**	[d^{-1}]	S

D=default, S=based on information of applicant

- **Calculations**

The local emissions into the soil are calculated according to the equations 3.5 and 3.6 from the revised ESD PT8 as following:

*Esoil,leach,time1 = AREAhouse . Q*leach, time1 / TIME 1*

*Esoil,leach,time2 = AREAhouse . Q*leach, time2 / TIME 2*

The local concentrations into the soil are calculated according to the equations 3.11 and 3.12 from the revised ESD PT8 as following:

$\boldsymbol{C}local_{soil,TIME1} = [E_{soil,leach,TIME1}/(V_{soil} \cdot RHO_{soil} \cdot k)] - [E_{soil,leach,TIME1}/(V_{soil} \cdot RHO_{soil} \cdot k)] \cdot (e^{-TIME1 \cdot k})$

$\boldsymbol{C}local_{soil,TIME2} = [E_{soil,leach,TIME2}/(V_{soil} \cdot RHO_{soil} \cdot k)] - [E_{soil,leach,TIME2}/(V_{soil} \cdot RHO_{soil} \cdot k)] \cdot (e^{-TIME2 \cdot k})$

The results are presented below (considering removal processes).

Bridge over pond scenario

The input parameters for calculating the local emission and concentration into the surface water following leaching are presented in the following table.

Input parameters for calculating the local emission				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Service life – Bridge over pond scenario				
Treated wood area	$AREA_{bridge}$	10	[m^2]	D
Duration of the initial assessment period	*TIME1*	30	[d]	D
Duration of the long-term assessment period	*TIME2*	5475	[d]	D
Cumulative quantity of substance leached out of 1 m^2 of treated wood over the initial assessment period	$Q^*_{leach,time1}$	**See above**	[$kg.m^{-2}$]	S
Cumulative quantity of substance leached out of 1 m^2 of treated wood over a longer assessment period	$Q^*_{leach,time2}$	**See above**	[$kg.m^{-2}$]	S
Water volume under bridge	V_{water}	1000	[m^3]	D

D=default, S=based on information of applicant

- **Calculations**

The local emissions into the water (the cumulative quantity of substance leached over 30 days and 15 years, $Q_{leach,time}$) are calculated according to the equations 4.61 and 4.62 from the revised ESD PT8 as following:

$$Qleach,time1 = AREAbridge \cdot Q^*leach,\ time1$$
$$Qleach,time2 = AREAbridge \cdot Q^*leach,\ time2$$

The local concentrations into the water are calculated according to the equations 4.63/4.64/4.65/4.66 from the revised ESD PT8 as following:

$$\boldsymbol{C}local_{water,leach,TIME1} = Qleach,time1 \cdot 0.001 / V_{water}$$
$$\boldsymbol{C}local_{water,leach,TIME2} = Qleach,time2 \cdot 0.001 / V_{water}$$
$$\boldsymbol{C}local_{water,total,TIME1} = \boldsymbol{C}local_{water,leach,TIME1}$$
$$\boldsymbol{C}local_{water,total,TIME2} = \boldsymbol{C}local_{water,leach,TIME2}$$

Noise barrier scenario

The noise barrier scenario describes a noise barrier that is made of poles with planks in between. The medium size of a noise barrier in an urbanized area is assumed to be 1000 m long and 3 m high. It is assumed that 30% of the emissions of active substances due to leaching end up directly in the adjacent soil and 70% of the emissions are collected in the gutter and sewer, and finally enter a STP.
The input parameters for calculating the local emission and concentration into the soil and the STP following leaching are presented in the following table.

Input parameters for calculating the local emission and concentration				
Input	**Nomenclature**	**Value**	**Unit**	**Remarks**
Scenario: Service life – Noise barrier scenario				
Treated wood area	$AREA_{noise\text{-}barrier}$	3000	[m^2]	D
Duration of the initial assessment period	*TIME1*	30	[d]	D
Duration of the long-term assessment period	*TIME2*	5475	[d]	D
Cumulative quantity of substance leached out of 1 m^2 of treated wood over the initial assessment period	$Q^*_{leach,time1}$	**See above**	[$kg.m^{-2}$]	S
Cumulative quantity of substance leached out of 1 m^2 of treated wood over a longer assessment period	$Q^*_{leach,time2}$	**See above**	[$kg.m^{-2}$]	S
(wet) soil volume	V_{soil}	250	[m^3]	D
Bulk density of wet soil	RHO_{soil}	1700	[$kg_{wwt}.m^{-3}$]	D
Fraction released to soil	F_{soil}	0.3	[-]	D
Fraction released to the STP	F_{STP}	0.7	[-]	D
First order rate constant for removal from soil	k	**See above**	[d^{-1}]	S

D=default, S=based on information of applicant

The local daily emissions into the STP are calculated according to the equations 3.5 and 3.6 from the revised ESD PT08 as following:

*ESTP,time 1 = AREAnoise-barrier x FSTP x Q*leach, time1 / Time 1*
*ESTP,time 2 = AREAnoise-barrier x FSTP x Q*leach, time2 / Time 2*

The local emissions into the soil are calculated according to the equations 3.5 and 3.6 from the revised ESD PT08 as following:

*Esoil,leach,time 1 = AREAnoise-barrier x FSTP x Q*leach, time1 / Time 1*
*Esoil,leach,time 2 = AREAnoise-barrier x FSTP x Q*leach, time2 / Time 2*

The local concentrations into the soil are calculated according to the equations 3.11 and 3.12 from the revised ESD PT8 as following:

$$\boldsymbol{C}local_{soil,TIME1} = [E_{soil,leach,TIME1}/(V_{soil} \cdot RHO_{soil} \cdot k)] - [E_{soil,leach,TIME1}/(V_{soil} \cdot RHO_{soil} \cdot k)] \cdot (e^{-TIME1 \cdot k})$$

$$\boldsymbol{C}local_{soil,TIME2} = [E_{soil,leach,TIME2}/(V_{soil} \cdot RHO_{soil} \cdot k)] - [E_{soil,leach,TIME2}/(V_{soil} \cdot RHO_{soil} \cdot k)] \cdot \cdot (e^{-TIME2 \cdot k})$$

Fate and distribution in exposed environmental compartments

The relevant environmental compartments for each substance and identified metabolites are specified in the table below

Phase	STP	Surface water		Sediment		Soil		Groundwater		Secondary Poisoning
		Direct Release	Via STP	Direct Release	Via STP	Direct Release	Via STP	Direct Release	Via STP	
Propiconazole	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Tebuconazole	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Cypermethrin	Y	Y	Y	Y	Y	Y	Y	N	N	Y
IPBC	Y	Y	N	N	N	Y	N	Y	N	N
PBC	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
1,2,4-triazole	N	N	N	N	N	Y	N	Y	Y	N

In the table below the relevant parameters from the active substance dossiers of all active substances are presented. For a general assessment of the environmental fate and behaviour of all four active substances refer to the active substances CAR.

Input parameters (only set values) for calculating the fate and distribution in the environment for the active substances

Input	Unit	Tebuconazole	Propiconazole	IPBC	Cypermethrin
Molecular weight	g/mol	307.8	342.2	281.1	416.3
Vapour pressure (at 20 °C)	Pa	1.7E-06	5.6E-05	2.36E-03	2.3E-07
Water solubility (at 20 °C)	mg/l	2.9E+01	1.00E+02	1.68E+2	4E-03
Log Octanol/water	Log 10	3.49	3.72	2.81	5.45

partition coefficient					
Organic carbon/water partition coefficient (Koc)	l/kg	992	944	135	575000
Henry's Law Constant (at 20 °C)	$Pa/m^3/mol$	1.00E-05	9.2E-05	6.45E-03	2.4E-02
Biodegradability		Not biodegradable	Not biodegradable	Not biodegradable	Not biodegradable

Input	**Unit**	**1.2.4-Triazole**	**PBC**
Molecular weight	g/mol	69.1	155.2
Vapour pressure (at 20 °C)	Pa	2.2E-01	1.88E+01
Water solubility (at 20 °C)	mg/l	7.0E+05	2.86E+05
Organic carbon/water partition coefficient (Koc)	l/kg	89	198.1
Fraction transformed (soil)	-	0.09 (Tebuconazole) 0.43 (Propiconazole)	1 (IPBC)

Calculated PEC values

In the present risk assessment, only the risk derived from the wood classified as Use Class (UC) 3 has been considered as the risks derived from wood UC 1 and 2 are considered insignificant.

Aquatic PEC values are summarised in the following tables:

Propiconazole	**$PEC_{Surface\ water}$ (mg/l)**	**PEC_{STP} (mg/l)**	**$PEC_{Sediment}$ (mg/kg_{wwt})**	**PEC_{soil} (mg/kg_{wwt})**	**$PEC_{groundwater}$ (mg/l)**
Preventive					
Industrial processes					

Application phase	Automated spraying (large plant)		$1.67 \cdot 10^{-2}$	$1.67 \cdot 10^{-1}$	$3.55 \cdot 10^{-1}$	$6.38 \cdot 10^{-2}$	$2.20 \cdot 10^{-3}$
	Short dipping		$3.33 \cdot 10^{-3}$	$3.34 \cdot 10^{-2}$	$7.10 \cdot 10^{-2}$	$1.28 \cdot 10^{-2}$	$4.40 \cdot 10^{-4}$
	Vacuum pressure		$2.425 \cdot 10^{-3}$	$4.25 \cdot 10^{-2}$	$9.05 \cdot 10^{-2}$	$1.62 \cdot 10^{-2}$	$5.60 \cdot 10^{-4}$
Storage phase	Automated spraying (Time 1)		$4.36 \cdot 10^{-3}$		$9.29 \cdot 10^{-2}$	5.05	$3.01 \cdot 10^{-1}$
	Automated spraying (Time 2)		$4.36 \cdot 10^{-3}$		$9.29 \cdot 10^{-2}$	$1.23 \cdot 10^{3}$	$17.33 \cdot 10^{+1}$
	Short dipping (Time 1)		$1.53 \cdot 10^{-3}$		$3.26 \cdot 10^{-2}$	2.00	$1.19 \cdot 10^{-1}$
	Short dipping (Time 2)		$1.53 \cdot 10^{-3}$		$3.26 \cdot 10^{-2}$	$4.87 \cdot 10^{2}$	$2.90 \cdot 10^{+1}$
	Vacuum pressure (Time 1)		$7.16 \cdot 10^{-3}$		$1.53 \cdot 10^{-1}$	$1.25 \cdot 10^{1}$	$7.45 \cdot 10^{-1}$
	Vacuum pressure(Time 2)		$7.16 \cdot 10^{-3}$		$1.53 \cdot 10^{-1}$	$3.04 \cdot 10^{3}$	$1.81 \cdot 10^{+2}$
Service Life Automated Spraying and Dipping	House (Time 1)					$6.14 \cdot 10^{-3}$	$9.35 \cdot 10^{-5}$
	House (Time 2)					$3.49 \cdot 10^{-2}$	$2.08 \cdot 10^{-3}$
	Noise barrier (Time 1)		$1.19 \cdot 10^{-6}$	$1.19 \cdot 10^{-5}$	$2.54 \cdot 10^{-5}$	$7.06 \cdot 10^{-4}$	$4.21 \cdot 10^{-5}$
	Noise barrier (Time 2)		$1.19 \cdot 10^{-6}$	$1.05 \cdot 10^{-5}$	$2.23 \cdot 10^{-5}$	$2.76 \cdot 10^{-3}$	$1.64 \cdot 10^{-4}$
	Bridge over pond (Time 1)		$3.71 \cdot 10^{-6}$		$7.90 \cdot 10^{-5}$		
	Bridge over pond (Time 2)		$9.08 \cdot 10^{-6}$		$1.93 \cdot 10^{-4}$		
Service Life - Double vacuum	House (Time 1)					$3.15 \cdot 10^{-1}$	$1.56 \cdot 10^{-2}$
	House (Time 2)					$1.04 \cdot 10^{-2}$	$6.20 \cdot 10^{-4}$
	Noise barrier (Time 1)		$1.98 \cdot 10^{-4}$	$1.98 \cdot 10^{-3}$	$4.22 \cdot 10^{-3}$	$1.18 \cdot 10^{-1}$	$7.02 \cdot 10^{-3}$
	Noise barrier (Time 2)		$1.49 \cdot 10^{-6}$	$1.49 \cdot 10^{-5}$	$3.16 \cdot 10^{-5}$	$3.89 \cdot 10^{-3}$	$2.32 \cdot 10^{-4}$
	Bridge over pond (Time 1)		$8.03 \cdot 10^{-4}$		$1.71 \cdot 10^{-2}$		
	Bridge over pond (Time 2)		$1.25 \cdot 10^{-5}$		$2.67 \cdot 10^{-4}$		
In situ							
Aplication - Brushing	House	Professional				$1.05 \cdot 10^{-1}$	$6.24 \cdot 10^{-3}$
		Non-professional				$1.74 \cdot 10^{-1}$	$1.04 \cdot 10^{-2}$
	Fence	Professional				$8.71 \cdot 10^{-2}$	$5.19 \cdot 10^{-3}$
		Non-professional				$1.45 \cdot 10^{-1}$	$8.65 \cdot 10^{-3}$
	Bridge	Professional	$1.85 \cdot 10^{-4}$		$3.94 \cdot 10^{-3}$		
		Non-professional	$3.08 \cdot 10^{-4}$		$6.57 \cdot 10^{-3}$		
Aplication - Spray	House	Professional				1.15	$6.83 \cdot 10^{-2}$
Service life-Brushing-professional	House (Time 1)					$8.32 \cdot 10^{-2}$	$4.11 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.31 \cdot 10^{-3}$
	Fence (Time 1)					$6.90 \cdot 10^{-2}$	$4.11 \cdot 10^{-3}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.09 \cdot 10^{-3}$
	Bridge over pond (Time		$3.71 \cdot 10^{-6}$		$7.90 \cdot 10^{-5}$		

	1)						
	Bridge over pond (Time 2)		$2.63 \cdot 10^{-5}$		$5.60 \cdot 10^{-4}$		
Service life-Brushing-Non-professional	House (Time 1)					$1.37 \cdot 10^{-1}$	$6.78 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.31 \cdot 10^{-3}$
	Fence (Time 1)					$1.14 \cdot 10^{-1}$	$6.78 \cdot 10^{-3}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.09 \cdot 10^{-3}$
	Bridge over pond (Time 1)		$3.71 \cdot 10^{-6}$		$7.90 \cdot 10^{-5}$		
	Bridge over pond (Time 2)		$2.63 \cdot 10^{-5}$		$5.60 \cdot 10^{-4}$		
Service life--Spray	House (Time 1)					$7.91 \cdot 10^{-2}$	$4.72 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.31 \cdot 10^{-3}$
Curative							
In situ							
Aplication -Brushing	House	Professional				$1.22 \cdot 10^{-1}$	$7.26 \cdot 10^{-3}$
		Non-professional				$2.03 \cdot 10^{-1}$	$1.21 \cdot 10^{-2}$
	Fence	Professional				$1.01 \cdot 10^{-1}$	$6.04 \cdot 10^{-3}$
		Non-professional				$1.69 \cdot 10^{-1}$	$1.01 \cdot 10^{-2}$
	Bridge	Professional	$2.15 \cdot 10^{-4}$		$4.58 \cdot 10^{-3}$		
		Non-professional	$3.59 \cdot 10^{-4}$		$7.64 \cdot 10^{-3}$		
Aplication -Spray	House	Professional				1.33	$7.95 \cdot 10^{-2}$
Aplication -Injection	Pole	Professional				$5.68 \cdot 10^{-3}$	$3.39 \cdot 10^{-4}$
Service life-Brushing-professional	House (Time 1)					$9.63 \cdot 10^{-2}$	$4.75 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.31 \cdot 10^{-3}$
	Fence (Time 1)					$7.97 \cdot 10^{-2}$	$4.75 \cdot 10^{-3}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.09 \cdot 10^{-3}$
	Bridge over pond (Time 1)		$3.71 \cdot 10^{-6}$		$7.90 \cdot 10^{-5}$		
	Bridge over pond (Time 2)		$2.63 \cdot 10^{-5}$		$5.60 \cdot 10^{-4}$		
Service life-Brushing-Non-professional	House (Time 1)					$1.59 \cdot 10^{-1}$	$7.89 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.31 \cdot 10^{-3}$
	Fence (Time 1)					$1.32 \cdot 10^{-1}$	$7.89 \cdot 10^{-3}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.09 \cdot 10^{-3}$
	Bridge over pond (Time 1)		$3.71 \cdot 10^{-6}$		$7.90 \cdot 10^{-5}$		
	Bridge over pond (Time 2)		$2.63 \cdot 10^{-5}$		$5.60 \cdot 10^{-4}$		
Service life-Spray	House (Time 1)					$9.17 \cdot 10^{-2}$	$5.47 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.31 \cdot 10^{-3}$
Service life-	Pole (Time1)					$4.45 \cdot 10^{-3}$	$2.65 \cdot 10^{-4}$
	Pole (Time2)					$6.17 \cdot 10^{-4}$	$3.68 \cdot 10^{-5}$

Injection						

Tebuconazole			**$PEC_{Surface\ water}$ (mg/l)**	**PEC_{STP} (mg/l)**	**$PEC_{Sediment}$ (mg/kg_{wwt})**	**PEC_{soil} (mg/kg_{wwt})**	**$PEC_{groundwater}$ (mg/l)**
Preventive							
Industrial processes							
Application phase	Automated spraying (large plant)		$1.65 \cdot 10^{-3}$	$1.65 \cdot 10^{-2}$	$3.68 \cdot 10^{-2}$	$6.83 \cdot 10^{-3}$	$2.18 \cdot 10^{-4}$
	Short dipping		$3.30 \cdot 10^{-4}$	$3.30 \cdot 10^{-3}$	$7.36 \cdot 10^{-3}$	$1.37 \cdot 10^{-3}$	$4.36 \cdot 10^{-5}$
	Vacuum pressure		$4.20 \cdot 10^{-4}$	$4.21 \cdot 10^{-3}$	$9.38 \cdot 10^{-3}$	$1.74 \cdot 10^{-3}$	$5.56 \cdot 10^{-5}$
Storage phase	Automated spraying (Time 1)		$4.79 \cdot 10^{-3}$		$1.07 \cdot 10^{-1}$	5.55	$3.15 \cdot 10^{-1}$
	Automated spraying (Time 2)		$4.79 \cdot 10^{-3}$		$1.07 \cdot 10^{-1}$	$1.35 \cdot 10^{3}$	$7.66 \cdot 10^{+1}$
	Short dipping (Time 1)		$1.65 \cdot 10^{-3}$		$3.69 \cdot 10^{-2}$	2.15	$1.22 \cdot 10^{-1}$
	Short dipping (Time 2)		$1.65 \cdot 10^{-3}$		$3.69 \cdot 10^{-2}$	$5.24 \cdot 10^{2}$	$2.97 \cdot 10^{+1}$
	DVacuum pressure(Time 1)		$1.82 \cdot 10^{-3}$		$4.07 \cdot 10^{-2}$	3.16	$1.79 \cdot 10^{-1}$
	Vacuum pressure(Time 2)		1.8210^{-3}		$4.07 \cdot 10^{-2}$	$7.70 \cdot 10^{2}$	$4.37 \cdot 10^{+1}$
Service Life Automated Spraying and Dipping	House (Time 1)					$2.00 \cdot 10^{-3}$	$9.43 \cdot 10^{-5}$
	House (Time 2)					$7.36 \cdot 10^{-3}$	$4.18 \cdot 10^{-4}$
	Noise barrier (Time 1)		$1.25 \cdot 10^{-6}$	$1.25 \cdot 10^{-5}$	$2.80 \cdot 10^{-5}$	$7.48 \cdot 10^{-4}$	$4.24 \cdot 10^{-5}$
	Noise barrier (Time 2)		$1.09 \cdot 10^{-6}$	$1.09 \cdot 10^{-5}$	$1.25 \cdot 10^{-5}$	$2.76 \cdot 10^{-3}$	$1.56 \cdot 10^{-4}$
	Bridge over pond (Time 1)		$5.90 \cdot 10^{-6}$		$1.32 \cdot 10^{-4}$		
	Bridge over pond (Time 2)		$3.61 \cdot 10^{-5}$		$8.08 \cdot 10^{-4}$		
Service Life - Double vacuum	House (Time 1)					$3.06 \cdot 10^{-1}$	$1.44 \cdot 10^{-2}$
	House (Time 2)					$9.83 \cdot 10^{-3}$	$5.58 \cdot 10^{-4}$
	Noise barrier (Time 1)		$4.54 \cdot 10^{-6}$	$4.54 \cdot 10^{-5}$	$1.01 \cdot 10^{-4}$	$1.15 \cdot 10^{-1}$	$6.50 \cdot 10^{-3}$
	Noise barrier (Time 2)		$3.70 \cdot 10^{-8}$	$3.60 \cdot 10^{-7}$	$8.04 \cdot 10^{-7}$	$3.68 \cdot 10^{-3}$	$2.09 \cdot 10^{-4}$
	Bridge over pond (Time 1)		$1.31 \cdot 10^{-3}$		$2.96 \cdot 10^{-2}$		
	Bridge over pond (Time 2)		$4.99 \cdot 10^{-5}$		$1.11 \cdot 10^{-3}$		
In situ							
Aplication - Brushing	House	Professional				$1.05 \cdot 10^{-1}$	$5.94 \cdot 10^{-3}$
		Non-professional				$1.74 \cdot 10^{-2}$	$9.90 \cdot 10^{-3}$
	Fence	Professional				$8.71 \cdot 10^{-1}$	$4.94 \cdot 10^{-3}$
		Non-professional				$1.45 \cdot 10^{-1}$	$8.24 \cdot 10^{-3}$
	Bridge	Professional	$1.85 \cdot 10^{-4}$		$4.14 \cdot 10^{-3}$		
		Non-	$3.08 \cdot 10^{-4}$		$6.89 \cdot 10^{-3}$		

		professional					
Aplication - Spray	House	Professional				1.15	$6.53 \cdot 10^{-2}$
Service life-Brushing-professional	House (Time 1)					$8.22 \cdot 10^{-2}$	3.787·10-23
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.25 \cdot 10^{-3}$
	Fence (Time 1)					6.6782·10-12	$3.78 \cdot 10^{-2}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.04 \cdot 10^{-3}$
	Bridge over pond (Time 1)		$5.91 \cdot 10^{-6}$		$1.32 \cdot 10^{-4}$		
	Bridge over pond (Time 2)		$1.02 \cdot 10^{-4}$		$2.28 \cdot 10^{-3}$		
Service life-Brushing-Non-professional	House (Time 1)					$1.35 \cdot 10^{-1}$	$6.38 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.25 \cdot 10^{-3}$
	Fence (Time 1)					$1.12 \cdot 10^{-1}$	$6.38 \cdot 10^{-3}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.04 \cdot 10^{-3}$
	Bridge over pond (Time 1)		$5.91 \cdot 10^{-6}$		$1.32 \cdot 10^{-3}$		
	Bridge over pond (Time 2)		$1.02 \cdot 10^{-4}$		$2.28 \cdot 10^{-3}$		
Service life--Spray	House (Time 1)					$7.82 \cdot 10^{-2}$	$4.44 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.25 \cdot 10^{-3}$
Curative							
In situ							
Aplication -Brushing	House	Professional				$1.22 \cdot 10^{-1}$	$6.91 \cdot 10^{-3}$
		Non-professional				$2.03 \cdot 10^{-1}$	$1.15 \cdot 10^{-2}$
	Fence	Professional				$1.01 \cdot 10^{-1}$	$5.75 \cdot 10^{-3}$
		Non-professional				$1.69 \cdot 10^{-1}$	$9.58 \cdot 10^{-3}$
	Bridge	Professional	$2.15 \cdot 10^{-4}$		$4.81 \cdot 10^{-3}$		
		Non-professional	$3.59 \cdot 10^{-4}$		$8.02 \cdot 10^{-3}$		
Aplication -Spray	House	Professional				1.33	$7.55 \cdot 10^{-2}$
Aplication -Injection	Pole	Professional				$5.68 \cdot 10^{-3}$	$8.59 \cdot 10^{-8}$
Service life-Brushing-professional	House (Time 1)					$9.51 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$
	House (Time 2)					$2.20 \cdot 10^{-2}$	$1.25 \cdot 10^{-3}$
	Fence (Time 1)					$7.88 \cdot 10^{-2}$	$4.47 \cdot 10^{-3}$
	Fence (Time 2)					$1.83 \cdot 10^{-2}$	$1.04 \cdot 10^{-3}$
	Bridge over pond (Time 1)		$5.91 \cdot 10^{-6}$		$1.32 \cdot 10^{-4}$		
	Bridge over pond (Time 2)		$1.02 \cdot 10^{-4}$		$2.27 \cdot 10^{-3}$		
Service	House (Time 1)					$1.57 \cdot 10^{-1}$	7.41·10-^{3}

life-Brushing-Non-professional	House (Time 2)				$2.20 \cdot 10^{-2}$	$1.25 \cdot 10^{-3}$
	Fence (Time 1)				$1.31 \cdot 10^{-1}$	$7.41 \cdot 10^{-3}$
	Fence (Time 2)				$1.83 \cdot 10^{-2}$	$1.04 \cdot 10^{-3}$
	Bridge over pond (Time 1)	$5.91 \cdot 10^{-6}$		$1.32 \cdot 10^{-4}$		
	Bridge over pond (Time 2)	$1.02 \cdot 10^{-4}$		$2.28 \cdot 10^{-3}$		
Service life-Spray	House (Time 1)				$9.06 \cdot 10^{-2}$	$5.14 \cdot 10^{-3}$
	House (Time 2)				$2.20 \cdot 10^{-2}$	$1.25 \cdot 10^{-3}$
Service life-Injection	Pole (Time1)				$4.35 \cdot 10^{-3}$	$2.47 \cdot 10^{-4}$
	Pole (Time2)				$2.42 \cdot 10^{-4}$	$1.37 \cdot 10^{-5}$

Cypermethrin		**$PEC_{Surface\ water}$ (mg/l)**	**PEC_{STP} (mg/l)**	**$PEC_{Sediment}$ (mg/kg_{wwt})**	**PEC_{soil} (mg/kg_{wwt})**	**$PEC_{groundwater}$ (mg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)	$9.18 \cdot 10^{-7}$	$3.29 \cdot 10^{-5}$	$3.44 \cdot 10^{-2}$	$4.74 \cdot 10^{-4}$	$1.11 \cdot 10^{-8}$
	Short dipping	$1.84 \cdot 10^{-7}$	$6.59 \cdot 10^{-6}$	$6.89 \cdot 10^{-3}$	$9.49 \cdot 10^{-5}$	$2.22 \cdot 10^{-9}$
	Vacuum pressure	$2.34 \cdot 10^{-7}$	$8.41 \cdot 10^{-6}$	$8.79 \cdot 10^{-3}$	$1.21 \cdot 10^{-4}$	$2.83 \cdot 10^{-9}$
Storage phase	Automated spraying (Time 1)	$1.51 \cdot 10^{-3}$		$5.66 \cdot 10^{1}$	1.75	$1.13 \cdot 10^{-4}$
	Automated spraying (Time 2)	$1.51 \cdot 10^{-3}$		$5.66 \cdot 10^{1}$	$4.25 \cdot 10^{2}$	$5.17 \cdot 10^{-2}$
	Short dipping (Time 1)	$4.71 \cdot 10^{-4}$		$1.77 \cdot 10^{1}$	$6.15 \cdot 10^{-1}$	$6.06 \cdot 10^{-5}$
	Short dipping (Time 2)	$4.71 \cdot 10^{-4}$		$1.77 \cdot 10^{1}$	$1.50 \cdot 10^{2}$	$1.48 \cdot 10^{-2}$
	Vacuum pressure (Time 1)	$6.06 \cdot 10^{-4}$		$2.27 \cdot 10^{1}$	1.06	$1.04 \cdot 10^{-4}$
	Vacuum pressure(Time 2)	$6.06 \cdot 10^{-4}$		$2.27 \cdot 10^{1}$	$2.57 \cdot 10^{2}$	$2.53 \cdot 10^{-2}$
Service Life Automated Spraying and Dipping	House (Time 1)				$2.49 \cdot 10^{-4}$	$2.04 \cdot 10^{-8}$
	House (Time 2)				$6.58 \cdot 10^{-4}$	$6.48 \cdot 10^{-8}$
	Noise barrier (Time 1)	$6.77 \cdot 10^{-9}$	$2.43 \cdot 10^{-7}$	$2.54 \cdot 10^{-4}$	$9.33 \cdot 10^{-5}$	$9.19 \cdot 10^{-9}$
	Noise barrier (Time 2)	$1.25 \cdot 10^{-8}$	$4.50 \cdot 10^{-7}$	$4.71 \cdot 10^{-4}$	$2.46 \cdot 10^{-4}$	$2.43 \cdot 10^{-8}$
	Bridge over pond (Time 1)	$2.23 \cdot 10^{-7}$		$3.38 \cdot 10^{-3}$		
	Bridge over pond (Time 2)	$3.18 \cdot 10^{-7}$		$1.19 \cdot 10^{-2}$		
Service Life - Double vacuum	House (Time 1)				$2.49 \cdot 10^{-4}$	$5.98 \cdot 10^{-6}$
	House (Time 2)				$4.93 \cdot 10^{-4}$	$4.86 \cdot 10^{-8}$
	Noise barrier (Time 1)	$4.02 \cdot 10^{-8}$	$1.44 \cdot 10^{-6}$	$1.51 \cdot 10^{-3}$	$2.73 \cdot 10^{-2}$	$2.69 \cdot 10^{-6}$
	Noise barrier (Time 2)	$3.57 \cdot 10^{-10}$	$1.28 \cdot 10^{-8}$	$3.34 \cdot 10^{-5}$	$2.98 \cdot 10^{-4}$	$2.94 \cdot 10^{-8}$
	Bridge over pond (Time 1)	$4.11 \cdot 10^{-5}$		1.54		
	Bridge over pond (Time	$3.83 \cdot 10^{-7}$		$1.44 \cdot 10^{-2}$		

	2)						
In situ							
Aplication - Brushing	House	Professional				$6.11 \cdot 10^{-2}$	$6.02 \cdot 10^{-6}$
		Non-professional				$1.02 \cdot 10^{-1}$	$1.00 \cdot 10^{-5}$
	Fence	Professional				$5.08 \cdot 10^{-2}$	$5.01 \cdot 10^{-6}$
		Non-professional				$8.47 \cdot 10^{-2}$	$8.34 \cdot 10^{-6}$
	Bridge	Professional	$1.08 \cdot 10^{-4}$		4.05		
		Non-professional	$1.80 \cdot 10^{-4}$		6.75		
Aplication - Spray	House	Professional				$6.69 \cdot 10^{-1}$	$6.59 \cdot 10^{-5}$
Service life-Brushing-professional	House (Time 1)					$1.37 \cdot 10^{-1}$	$1.51 \cdot 10^{-6}$
	House (Time 2)					$1.93 \cdot 10^{-3}$	$1.90 \cdot 10^{-7}$
	Fence (Time 1)					$1.54 \cdot 10^{-2}$	$1.51 \cdot 10^{-6}$
	Fence (Time 2)					$1.61 \cdot 10^{-3}$	$1.58 \cdot 10^{-7}$
	Bridge over pond (Time 1)		$2.23 \cdot 10^{-7}$		$8.38 \cdot 10^{-3}$		
	Bridge over pond (Time 2)		$7.98 \cdot 10^{-7}$		$2.99 \cdot 10^{-2}$		
Service life-Brushing-Non-professional	House (Time 1)					$1.37 \cdot 10^{-1}$	$2.51 \cdot 10^{-6}$
	House (Time 2)					$1.93 \cdot 10^{-3}$	$1.90 \cdot 10^{-7}$
	Fence (Time 1)					$2.55 \cdot 10^{-2}$	$2.51 \cdot 10^{-6}$
	Fence (Time 2)					$1.61 \cdot 10^{-3}$	$1.58 \cdot 10^{-7}$
	Bridge over pond (Time 1)		$2.23 \cdot 10^{-7}$		$8.38 \cdot 10^{-3}$		
	Bridge over pond (Time 2)		$7.98 \cdot 10^{-7}$		$2.99 \cdot 10^{-2}$		
Service life--Spray	House (Time 1)					$1.76 \cdot 10^{-2}$	$1.74 \cdot 10^{-6}$
	House (Time 2)					$1.93 \cdot 10^{-3}$	$1.90 \cdot 10^{-7}$
Curative							
In situ							
Aplication -Brushing	House	Professional				$7.10 \cdot 10^{-2}$	$7.00 \cdot 10^{-6}$
		Non-professional				$1.18 \cdot 10^{-1}$	$1.17 \cdot 10^{-5}$
	Fence	Professional				$5.91 \cdot 10^{-2}$	$5.82 \cdot 10^{-6}$
		Non-professional				$9.85 \cdot 10^{-2}$	$9.70 \cdot 10^{-6}$
	Bridge	Professional	$1.26 \cdot 10^{-4}$		4.71		
		Non-professional	$2.09 \cdot 10^{-4}$		7.85		
Aplication -Spray	House	Professional				$7.78 \cdot 10^{-1}$	$7.66 \cdot 10^{-5}$
Aplication -Injection	Pole	Professional				$3.31 \cdot 10^{-3}$	$3.27 \cdot 10^{-7}$

Service life-Brushing-professional	House (Time 1)				$1.37 \cdot 10^{-1}$	$1.76 \cdot 10^{-6}$
	House (Time 2)				$1.93 \cdot 10^{-3}$	$1.90 \cdot 10^{-7}$
	Fence (Time 1)				$1.78 \cdot 10^{-2}$	$1.76 \cdot 10^{-6}$
	Fence (Time 2)				$1.61 \cdot 10^{-3}$	$1.58 \cdot 10^{-7}$
	Bridge over pond (Time 1)	$2.23 \cdot 10^{-7}$		$8.38 \cdot 10^{-3}$		
	Bridge over pond (Time 2)	$7.98 \cdot 10^{-7}$		$2.99 \cdot 10^{-2}$		
Service life-Brushing-Non-professional	House (Time 1)				$1.37 \cdot 10^{-1}$	$2.92 \cdot 10^{-6}$
	House (Time 2)				$1.93 \cdot 10^{-3}$	$1.90 \cdot 10^{-7}$
	Fence (Time 1)				$2.96 \cdot 10^{-2}$	$2.92 \cdot 10^{-6}$
	Fence (Time 2)				$1.61 \cdot 10^{-3}$	$1.58 \cdot 10^{-7}$
	Bridge over pond (Time 1)	$2.23 \cdot 10^{-7}$		$8.38 \cdot 10^{-3}$		
	Bridge over pond (Time 2)	$7.98 \cdot 10^{-7}$		$2.99 \cdot 10^{-2}$		
Service life-Spray	House (Time 1)				$2.05 \cdot 10^{-2}$	$2.02 \cdot 10^{-6}$
	House (Time 2)				$1.93 \cdot 10^{-3}$	$1.90 \cdot 10^{-7}$
Service life-Injection	Pole (Time1)				$9.96 \cdot 10^{-4}$	$9.82 \cdot 10^{-8}$
	Pole (Time2)				$5.41 \cdot 10^{-5}$	$5.33 \cdot 10^{-9}$

IPBC		**$PEC_{Surface\ water}$ (mg/l)**	**PEC_{STP} (mg/l)**	**$PEC_{Sediment}$ (mg/kg_{wwt})**	**PEC_{soil} (mg/kg_{wwt})**	**$PEC_{groundwater}$ (mg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)	$1.79 \cdot 10^{-2}$	$1.79 \cdot 10^{-1}$	$6.62 \cdot 10^{-2}$	$2.37 \cdot 10^{-4}$	$1.58 \cdot 10^{-5}$
	Short dipping	$3.57 \cdot 10^{-3}$	$3.57 \cdot 10^{-2}$	$1.32 \cdot 10^{-2}$	$4.74 \cdot 10^{-5}$	$3.17 \cdot 10^{-6}$
	Vacuum pressure	$4.55 \cdot 10^{-3}$	$4.55 \cdot 10^{-2}$	$1.69 \cdot 10^{-2}$	$6.03 \cdot 10^{-5}$	$4.04 \cdot 10^{-6}$
Storage phase	Automated spraying (Time 1)	$3.99 \cdot 10^{-3}$		$1.48 \cdot 10^{-2}$	4.62	1.85
	Automated spraying (Time 2)	$3.99 \cdot 10^{-3}$		$1.48 \cdot 10^{-2}$	$1.12 \cdot 10^{3}$	$4.49 \cdot 10^{2}$
	Short dipping (Time 1)	$1.38 \cdot 10^{-3}$		$5.11 \cdot 10^{-3}$	1.81	$7.26 \cdot 10^{-1}$
	Short dipping (Time 2)	$1.38 \cdot 10^{-3}$		$5.11 \cdot 10^{-3}$	$4.40 \cdot 10^{2}$	$1.76 \cdot 10^{2}$
	DVacuum pressure (Time 1)	$1.35 \cdot 10^{-3}$		$5.00 \cdot 10^{-3}$	2.35	$9.43 \cdot 10^{-1}$
	DVacuum pressure (Time 2)	$1.35 \cdot 10^{--3}$		$5.00 \cdot 10^{-3}$	$5.72 \cdot 10^{2}$	$2.30 \cdot 10^{2}$
Service Life Automated Spraying and	House (Time 1)				$1.70 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	House (Time 2)				$1.59 \cdot 10^{-5}$	$6.39 \cdot 10^{-6}$
	Noise barrier (Time 1)	$1.08 \cdot 10^{-6}$	$1.08 \cdot 10^{-5}$	$4.00 \cdot 10^{-6}$	$6.38 \cdot 10^{-6}$	$2.56 \cdot 10^{-6}$
	Noise barrier (Time 2)	$1.01 \cdot 10^{-6}$	$1.01 \cdot 10^{-5}$	$3.75 \cdot 10^{-6}$	$5.97 \cdot 10^{-6}$	$2.39 \cdot 10^{-6}$
	Bridge over pond (Time 1)	$6.23 \cdot 10^{-8}$		$2.31 \cdot 10^{-7}$		

Dipping	Bridge over pond (Time 2)		$8.95 \cdot 10^{-8}$		$3.31 \cdot 10^{-7}$		
Service Life - Double vacuum	House (Time 1)					$2.76 \cdot 10^{-3}$	$9.19 \cdot 10^{-4}$
	House (Time 2)					$2.00 \cdot 10^{-5}$	$8.00 \cdot 10^{-6}$
	Noise barrier (Time 1)		$1.74 \cdot 10^{-4}$	$1.74 \cdot 10^{-3}$	$6.46 \cdot 10^{-4}$	$1.03 \cdot 10^{-3}$	$4.14 \cdot 10^{-4}$
	Noise barrier (Time 2)		$1.26 \cdot 10^{-6}$	$1.26 \cdot 10^{-5}$	$4.67 \cdot 10^{-6}$	$7.47 \cdot 10^{-6}$	$3.00 \cdot 10^{-6}$
	Bridge over pond (Time 1)		$1.40 \cdot 10^{-5}$		$5.19 \cdot 10^{-5}$		
	Bridge over pond (Time 2)		$1.09 \cdot 10^{-7}$		$4.04 \cdot 10^{-7}$		
In situ							
Aplication - Brushing	House	Professional				$1.05 \cdot 10^{-1}$	$4.20 \cdot 10^{-2}$
		Non-professional				$1.74 \cdot 10^{-1}$	$7.00 \cdot 10^{-2}$
	Fence	Professional				$8.71 \cdot 10^{-2}$	$3.50 \cdot 10^{-2}$
		Non-professional				$1.45 \cdot 10^{-1}$	$5.83 \cdot 10^{-2}$
	Bridge	Professional	$1.85 \cdot 10^{-4}$		$6.86 \cdot 10^{-4}$		
		Non-professional	$3.08 \cdot 10^{-4}$		$1.14 \cdot 10^{-3}$		
Aplication - Spray	House	Professional				1.15	$4.60 \cdot 10^{-1}$
Service life-Brushing-professional	House (Time 1)					$1.70 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	House (Time 2)					$4.76 \cdot 10^{-5}$	$1.91 \cdot 10^{-5}$
	Fence (Time 1)					$1.42 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	Fence (Time 2)					$3.96 \cdot 10^{-5}$	$1.59 \cdot 10^{-5}$
	Bridge over pond (Time 1)		$6.23 \cdot 10^{-8}$		$2.30 \cdot 10^{-7}$		
	Bridge over pond (Time 2)		$2.60 \cdot 10^{-7}$		$9.58 \cdot 10^{-7}$		
Service life-Brushing-Non-professional	House (Time 1)					$1.70 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	House (Time 2)					$4.76 \cdot 10^{-5}$	$1.91 \cdot 10^{-5}$
	Fence (Time 1)					$1.42 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	Fence (Time 2)					$3.96 \cdot 10^{-5}$	$1.59 \cdot 10^{-5}$
	Bridge over pond (Time 1)		$6.23 \cdot 10^{-8}$		$2.30 \cdot 10^{-7}$		
	Bridge over pond (Time 2)		$2.60 \cdot 10^{-7}$		$9.58 \cdot 10^{-7}$		
Service life--Spray	House (Time 1)					$1.71 \cdot 10^{-5}$	$6.85 \cdot 10^{-6}$
	House (Time 2)					$4.76 \cdot 10^{-5}$	$1.91 \cdot 10^{-5}$
Curative							
In situ							
Aplication -Brushing	House	Professional				$1.22 \cdot 10^{-1}$	$4.89 \cdot 10^{-2}$
		Non-professional				$2.03 \cdot 10^{-1}$	$8.14 \cdot 10^{-2}$
	Fence	Professional				$1.01 \cdot 10^{-1}$	$4.06 \cdot 10^{-2}$
		Non-				$1.69 \cdot 10^{-1}$	$6.77 \cdot 10^{-2}$

		professional					
	Bridge	Professional	$2.15 \cdot 10^{-4}$		$7.98 \cdot 10^{-4}$		
		Non-professional	$3.59 \cdot 10^{-4}$		$1.33 \cdot 10^{-3}$		
Aplication -Spray	House	Professional				1.33	$5.35 \cdot 10^{-1}$
Aplication -Injection	Pole	Professional				$5.68 \cdot 10^{-3}$	$2.28 \cdot 10^{-3}$
Service life-Brushing-professional	House (Time 1)					$1.70 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	House (Time 2)					$4.76 \cdot 10^{-5}$	$1.91 \cdot 10^{-5}$
	Fence (Time 1)					$1.42 \cdot 10^{-5}$	$5.69 \cdot 10^{-5}$
	Fence (Time 2)					$3.96 \cdot 10^{-5}$	$1.59 \cdot 10^{-5}$
	Bridge over pond (Time 1)		$6.23 \cdot 10^{-8}$		$2.30 \cdot 10^{-7}$		
	Bridge over pond (Time 2)		$2.60 \cdot 10^{-7}$		$9.58 \cdot 10^{-7}$		
Service life-Brushing-Non-professional	House (Time 1)					$1.70 \cdot 10^{-5}$	$5.69 \cdot 10^{-6}$
	House (Time 2)					$4.76 \cdot 10^{-5}$	$1.91 \cdot 10^{-5}$
	Fence (Time 1)					$1.42 \cdot 10^{-5}$	$5.69 \cdot 10^{-5}$
	Fence (Time 2)					$3.96 \cdot 10^{-5}$	$1.59 \cdot 10^{-5}$
	Bridge over pond (Time 1)		$6.23 \cdot 10^{-8}$		$2.30 \cdot 10^{-7}$		
	Bridge over pond (Time 2)		$2.60 \cdot 10^{-7}$		$9.58 \cdot 10^{-7}$		
Service life-Spray	House (Time 1)					$1.71 \cdot 10^{-5}$	$6.85 \cdot 10^{-6}$
	House (Time 2)					$4.76 \cdot 10^{-5}$	$1.91 \cdot 10^{-5}$
Service life-Injection	Pole (Time1)					$5.64 \cdot 10^{-7}$	$2.26 \cdot 10^{-7}$
	Pole (Time2)					$1.49 \cdot 10^{-6}$	$5.97 \cdot 10^{-7}$

Relevant degradation products and their assessment for the soil compartment

Degradation of **IPBC** yields the primary degradate propargyl butyl carbamate (PBC) as well as iodine. PEC values have been calculated for PBC only for the soil compartment which is the compartment with the higher risk. Therefore, emissions of PBC (degradation product of IPBC) are also calculated assuming 100% formation fraction of IPBC to PBC at time 0, using the ratio between the molar mass of PBC and IPBC of 0.552 in soil and water.
Moreover IPBC is quickly degraded in the environment in iodine, released as iodine radical, which is not stable in soil and can be considered as a "transient metabolites". The final reaction end-products would be iodide and iodate. According to the conclusions of the AR for IPBC PT06 (27/09/2013), a quantitative assessment should not be a requirements for the final reaction end-products of IPBC. Moreover this present evaluation is covered by the qualitative assessment proposed in the AR for IPBC PT06.
In addition, the background concentrations of iodine in the environment (and particularly in the soil compartment: see table below) are much higher than what could be calculated after degradation of the IPBC of the product JC-CTPI-3.

Background concentration of iodine in the environment	
Compartment	**Background level (as iodine)**
Soil	Typically 0.5 - 20 mg/kg dw but with extremes

	up to 98 mg/kg Global mean value of 5 mg/kg
Groundwater	Mean concentration: 1 µg/l Range: < 1-70 µg/l with extremes up to 400 µg/l

The assessment of 1,2,4-triazole was proposed only for emission to soil. The emission calculation for the metabolite takes into account the maximal level of formation fraction of the substances in soil (9% and 43% for **tebuconazole** and **propiconazole** respectively, as defined for the approval of these substances) and the molar mass of each component. An assessment 1,2,4-triazole is also proposed for soil compartment.

PBC			**$PEC_{Surface\ water}$ (mg/l)**	**PEC_{STP} (mg/l)**	**$PEC_{Sediment}$ (mg/kg_{wwt})**	**PEC_{soil} (mg/kg_{wwt})**	**$PEC_{groundwater}$ (mg/l)**
Preventive							
Industrial processes							
Application phase	Automated spraying (large plant)		$9.88 \cdot 10^{-03}$			$1.31 \cdot 10^{-04}$	$3.62 \cdot 10^{-05}$
	Short dipping		$1.97 \cdot 10^{-03}$			$2.62 \cdot 10^{-05}$	$7.24 \cdot 10^{-06}$
	DVacuum pressure		$12.51 \cdot 10^{-03}$			$13.33 \cdot 10^{-05}$	$49.22 \cdot 10^{-06}$
Storage phase	Automated spraying (Time 1)		$2.20 \cdot 10^{-03}$			2.55024	$7.06 \cdot 10^{-01}$
	Automated spraying (Time 2)		$2.20 \cdot 10^{-03}$			$6.18 \cdot 10^{+02}$	$1.71 \cdot 10^{+02}$
	Short dipping (Time 1)		$7.62 \cdot 10^{-04}$			$9.99 \cdot 10^{-01}$	$2.77 \cdot 10^{-01}$
	Short dipping (Time 2)		$7.62 \cdot 10^{-04}$			$2.43 \cdot 10^{+02}$	$6.72 \cdot 10^{+01}$
	DVacuum pressure (Time 1)		$37.45 \cdot 10^{-04}$			1.2972	$3.59 \cdot 10^{-01}$
	DVacuum pressure (Time 2)		$37.45 \cdot 10^{-04}$			$3.16 \cdot 10^{+02}$	$8.74 \cdot 10^{+01}$
Service Life Automated Spraying and Dipping	House (Time 1)					$9.38 \cdot 10^{-06}$	$2.60 \cdot 10^{-06}$
	House (Time 2)					$8.78 \cdot 10^{-06}$	$2.43 \cdot 10^{-06}$
	Noise barrier (Time 1)		$5.96 \cdot 10^{-07}$			$3.52 \cdot 10^{-06}$	$9.75 \cdot 10^{-07}$
	Noise barrier (Time 2)		$5.58 \cdot 10^{-07}$			$3.30 \cdot 10^{-06}$	$9.12 \cdot 10^{-07}$
	Bridge over pond (Time 1)		$3.44 \cdot 10^{-08}$				
	Bridge over pond (Time 2)		$4.94 \cdot 10^{-08}$				
Service Life - Double vacuum	House (Time 1)					$1.52 \cdot 10\text{-}^{03}$	$4.22 \cdot 10^{-04}$
	House (Time 2)					$1.10 \cdot 10^{-05}$	$3.06 \cdot 10^{-06}$
	Noise barrier (Time 1)		$9.60 \cdot 10^{-05}$			$5.69 \cdot 10^{-04}$	$1.57 \cdot 10^{-04}$
	Noise barrier (Time 2)		$6.96 \cdot 10\text{-}^{07}$			$4.12 \cdot 10^{-06}$	$1.14 \cdot 10^{-06}$
	Bridge over pond (Time 1)		$7.73 \cdot 10^{-06}$				
	Bridge over pond (Time 2)		$6.02 \cdot 10^{-08}$				
In situ							
	House	Professional				$5.80 \cdot 10^{-02}$	$1.60 \cdot 10^{-02}$

Aplication - Brushing		Non-professional				$9.60 \cdot 10^{-02}$	$2.66 \cdot 10^{-02}$
	Fence	Professional				$4.81 \cdot 10^{-02}$	$1.33 \cdot 10^{-02}$
		Non-professional				$8.00 \cdot 10^{-02}$	$2.22 \cdot 10^{-02}$
	Bridge	Professional	$1.02 \cdot 10^{-04}$				
		Non-professional	$1.70 \cdot 10^{-04}$				
Aplication - Spray	House	Professional				$6.35 \cdot 10^{-01}$	$1.76 \cdot 10^{-01}$
Service life-Brushing-professional	House (Time 1)					$9.38 \cdot 10^{-06}$	$2.60 \cdot 10^{-06}$
	House (Time 2)					$2.63 \cdot 10^{-05}$	$7.27 \cdot 10^{-06}$
	Fence (Time 1)					$7.84 \cdot 10^{-06}$	$2.17 \cdot 10^{-06}$
	Fence (Time 2)					$2.19 \cdot 10^{-05}$	$6.05 \cdot 10^{-06}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Brushing-Non-professional	House (Time 1)					$9.38 \cdot 10^{-06}$	$2.60 \cdot 10^{-06}$
	House (Time 2)					$2.63 \cdot 10^{-05}$	$7.27 \cdot 10^{-06}$
	Fence (Time 1)					$7.84 \cdot 10^{-06}$	$2.17 \cdot 10^{-06}$
	Fence (Time 2)					$2.19 \cdot 10^{-05}$	$6.05 \cdot 10^{-06}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life--Spray	House (Time 1)					$9.44 \cdot 10^{-06}$	$2.61 \cdot 10^{-06}$
	House (Time 2)					$2.63 \cdot 10^{-05}$	$7.27 \cdot 10^{-06}$
Curative							
In situ							
Aplication -Brushing	House	Professional				$6.73 \cdot 10^{-02}$	$1.86 \cdot 10^{-02}$
		Non-professional				$1.12 \cdot 10^{-01}$	$3.10 \cdot 10^{-02}$
	Fence	Professional				$5.58 \cdot 10^{-02}$	$1.54 \cdot 10^{-02}$
		Non-professional				$9.33 \cdot 10^{-02}$	$2.58 \cdot 10^{-02}$
	Bridge	Professional	$1.19 \cdot 10^{-04}$				
		Non-professional	$1.98 \cdot 10^{-04}$				
Aplication -Spray	House	Professional				$7.34 \cdot 10^{-01}$	$2.03 \cdot 10^{-01}$
Aplication -Injection	Pole	Professional				$3.14 \cdot 10^{-03}$	$8.68 \cdot 10^{-04}$
Service life-Brushing-professio	House (Time 1)					$9.38 \cdot 10^{-06}$	$2.60 \cdot 10^{-06}$
	House (Time 2)					$2.63 \cdot 10^{-05}$	$7.27 \cdot 10^{-06}$
	Fence (Time 1)					$7.84 \cdot 10^{-04}$	$2.17 \cdot 10^{-04}$
	Fence (Time 2)					$2.19 \cdot 10^{-05}$	$6.05 \cdot 10^{-06}$

nal	Bridge over pond (Time 1)					
	Bridge over pond (Time 2)					
Service life-Brushing-Non-professional	House (Time 1)				$9.38 \cdot 10^{-06}$	$2.60 \cdot 10^{-06}$
	House (Time 2)				$2.63 \cdot 10^{-05}$	$7.27 \cdot 10^{-06}$
	Fence (Time 1)				$7.84 \cdot 10^{-06}$	$2.17 \cdot 10^{-06}$
	Fence (Time 2)				$2.19 \cdot 10^{-05}$	$6.05 \cdot 10^{-06}$
	Bridge over pond (Time 1)					
	Bridge over pond (Time 2)					
Service life-Spray	House (Time 1)				$9.44 \cdot 10^{-06}$	$2.61 \cdot 10^{-06}$
	House (Time 2)				$2.63 \cdot 10^{-05}$	$7.27 \cdot 10^{-06}$
Service life-Injection	Pole (Time1)				$3.11 \cdot 10^{-07}$	$8.62 \cdot 10^{-08}$
	Pole (Time2)				$8.22 \cdot 10^{-07}$	$2.28 \cdot 10^{-07}$

1.2.3-Triazole		**$PEC_{Surface\ water}$ (mg/l)**	**PEC_{STP} (mg/l)**	**$PEC_{Sediment}$ (mg/kg_{wwt})**	**PEC_{soil} (mg/kg_{wwt})**	**$PEC_{groundwater}$ (mg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)				$5.88 \cdot 10^{-03}$	$3.19 \cdot 10^{-03}$
	Short dipping				$1.18 \cdot 10^{-03}$	$6.41 \cdot 10^{-04}$
	DVacuum pressure				$1.49 \cdot 10^{-03}$	$8.11 \cdot 10^{-04}$
Storage phase	Automated spraying (Time 1)				$5.66 \cdot 10^{-01}$	$3.07 \cdot 10^{-01}$
	Automated spraying (Time 2)				$1.38 \cdot 10^{+02}$	$7.48 \cdot 10^{+01}$
	Short dipping (Time 1)				$2.23 \cdot 10^{-01}$	$1.21 \cdot 10^{-01}$
	Short dipping (Time 2)				$5.43 \cdot 10^{+01}$	$2.95 \cdot 10^{+01}$
	DVacuum pressure (Time 1)				$1.19 \cdot 10^{+00}$	$6.45 \cdot 10^{-01}$
	DVacuum pressure (Time 2)				$2.89 \cdot 10^{+02}$	$1.57 \cdot 10^{+02}$
Service Life Automated Spraying and Dipping	House (Time 1)				$5.93 \cdot 10^{-04}$	$3.22 \cdot 10^{-04}$
	House (Time 2)				$3.29 \cdot 10^{-03}$	$1.79 \cdot 10^{-03}$
	Noise barrier (Time 1)				$7.85 \cdot 10^{-05}$	$4.26 \cdot 10^{-05}$
	Noise barrier (Time 2)				$3.04 \cdot 10^{-04}$	$1.65 \cdot 10^{-04}$
	Bridge over pond (Time 1)					
	Bridge over pond (Time 2)					
Service Life -	House (Time 1)				$3.45 \cdot 10^{-02}$	$1.87 \cdot 10^{-02}$
	House (Time 2)				$1.13 \cdot 10^{-03}$	$6.15 \cdot 10^{-04}$

Double vacuum	Noise barrier (Time 1)					$1.29 \cdot 10^{-02}$	$7.02 \cdot 10^{-03}$
	Noise barrier (Time 2)					$4.24 \cdot 10^{-04}$	$2.30 \cdot 10^{-04}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
In situ							
Aplication - Brushing	House	Professional				$1.16 \cdot 10^{-02}$	$6.27 \cdot 10^{-03}$
		Non-professional				$1.60 \cdot 10^{-02}$	$8.69 \cdot 10^{-03}$
	Fence	Professional				$2.53 \cdot 10^{-02}$	$1.37 \cdot 10^{-02}$
		Non-professional				$1.60 \cdot 10^{-02}$	$8.66 \cdot 10^{-03}$
	Bridge	Professional					
		Non-professional					
Aplication - Spray	House	Professional				$1.27 \cdot 10^{-01}$	$6.87 \cdot 10^{-02}$
Service life-Brushing-professional	House (Time 1)					$9.13 \cdot 10^{-03}$	$4.96 \cdot 10^{-03}$
	House (Time 2)					$2.42 \cdot 10^{-03}$	$1.31 \cdot 10^{-03}$
	Fence (Time 1)					$7.57 \cdot 10^{-03}$	$4.11 \cdot 10^{-03}$
	Fence (Time 2)					$2.01 \cdot 10^{-03}$	$1.09 \cdot 10^{-03}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Brushing-Non-professional	House (Time 1)					$1.50 \cdot 10^{-02}$	$8.16 \cdot 10^{-03}$
	House (Time 2)					$2.42 \cdot 10^{-03}$	$1.31 \cdot 10^{-03}$
	Fence (Time 1)					$1.25 \cdot 10^{-02}$	$6.79 \cdot 10^{-03}$
	Fence (Time 2)					$2.01 \cdot 10^{-03}$	$1.09 \cdot 10^{-03}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life--Spray	House (Time 1)					$8.68 \cdot 10^{-03}$	$4.72 \cdot 10^{-03}$
	House (Time 2)					$2.42 \cdot 10^{-03}$	$1.31 \cdot 10^{-03}$
Curative							
In situ							
Aplication -Brushing	House	Professional				$1.34 \cdot 10^{-02}$	$7.29 \cdot 10^{-03}$
		Non-professional				$2.23 \cdot 10^{-02}$	$1.21 \cdot 10^{-02}$
	Fence	Professional				$1.11 \cdot 10^{-02}$	$6.03 \cdot 10^{-03}$
		Non-professional				$1.86 \cdot 10^{-02}$	$1.01 \cdot 10^{-02}$
	Bridge	Professional					
		Non-professional					

Aplication -Spray	House	Professional				$1.46 \cdot 10^{-01}$	$7.95 \cdot 10^{-02}$
Aplication -Injection	Pole	Professional				$6.25 \cdot 10^{-04}$	$3.39 \cdot 10^{-04}$
Service life-Brushing-professional	House (Time 1)					$1.06 \cdot 10^{-02}$	$5.74 \cdot 10^{-03}$
	House (Time 2)					$2.42 \cdot 10^{-03}$	$1.31 \cdot 10^{-03}$
	Fence (Time 1)					$8.75 \cdot 10^{-03}$	$4.75 \cdot 10^{-03}$
	Fence (Time 2)					$2.01 \cdot 10^{-03}$	$1.09 \cdot 10^{-03}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Brushing-Non-professional	House (Time 1)					$1.75 \cdot 10^{-02}$	$9.48 \cdot 10^{-03}$
	House (Time 2)					$2.42 \cdot 10^{-03}$	$1.31 \cdot 10^{-03}$
	Fence (Time 1)					$1.45 \cdot 10\text{-}^{02}$	$7.88 \cdot 10^{-03}$
	Fence (Time 2)					$2.01 \cdot 10^{-03}$	$1.09 \cdot 10^{-03}$
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Spray	House (Time 1)					$1.01 \cdot 10^{-02}$	$5.47 \cdot 10^{-03}$
	House (Time 2)					$2.42 \cdot 10^{-03}$	$1.31 \cdot 10^{-03}$
Service life-Injection	Pole (Time1)					$4.88 \cdot 10^{-04}$	$2.65 \cdot 10^{-04}$
	Pole (Time2)					$6.04 \cdot 10^{-05}$	$3.28 \cdot 10^{-05}$

Primary and secondary poisoning

Primary poisoning

A direct uptake of the product is unlikely.

Secondary poisoning

According to Vol IV, Part B the calculation of a possible risk to man via the food chain ($PEC_{oral,predator}$) should be conducted if the active substance shows a potential for bioaccumulation, indicated by a log K_{ow} value >3.

A secondary exposure of man to **IPBC** relevant to the food chain can be excluded due to the minimum amount which reaches the soil. In addition, the log K_{ow} is less than 3 and the soil area of concern is very small.

Although the log Kow of **Propiconazole** (log K_{ow} = 3.7) reveals a slight potential for bioaccumulation, the assessment of secondary poisoning is not requested according to the active substance Assessment Report for the use of propiconazole in wood preservatives.

According to the BCF in earthworm equal to 28 and the BCF in fish equal to 78, **Tebuconazole** is not expected to bioaccumulate to terrestrial and aquatic organisms. Therefore, an assessment of secondary poisoning doesn't need to be performed.

ES-CA considers that secondary poisoning is relevant only for the active substance cypermethrin.

For the aquatic food chain**,** the scenario "direct emissions during service life double vacuum - Bridge over the pond scenario" is taken into account as worst case with a $Clocal_{water,TWA\_TIME1}$ of 4.11E-05 $mg.L^{-1}$.
For the terrestrial food chain, the scenario "Direct emissions to soil – House - Service life of treated wood by brushing" is taken into account with a $Clocal_{soil,TWA\_TIME1}$ of 1.37E-01 $mg.kg^{-1}_{wwt}$.
In accordance with the equations of the ECHA guidance vol.IV, part B (2015), $PEC_{oral,predator}$ for both food chain were calculated as followed:

Parameter / variable	**Symbol**	**Unit**	**Value**
Aquatic food chain:			
Predicted environmental concentration during episode	$PEC_{local,water}$	$[mg.l^{-1}]$	4.11E-05
Bioconcentration factor for fish on wet weight basis	BCF_{fish}	$[l.kg^{-1}_{wet\ fish}]$	417
Biomagnification factor in fish	BMF	[-]	2
Predicted environmental concentration in food (considering that predators feed at 50% on local level)	**$PEC_{oral,predator}$**	**$[mg.kg^{-1}_{wet\ fish}]$**	**1.71E-02**
Terrestrial food chain :			
log of partition coefficient n-octanol-water	Log K_{ow}	[-]	5.45
Bioconcentration factor for earthworm on wet weight basis	$BCF_{earthworm}$	$[l.kg^{-1}_{wet\ earthworm}]$	3.38E+03
Concentration in porewater	$C_{porewater}$	$[mg.l^{-1}]$	2.92E-06
Concentration in soil	C_{soil}	$[mg.kg^{-1}_{wwt}]$	1.37E-01
Fraction of gut loading in worm	F_{gut}	$[kg_{dwt}.kg^{-1}_{wwt}]$	0.1
Conversion factor for soil concentration wet-dry weight soil	$CONV_{soil}$	$[kg_{wwt}.kg^{-1}_{dwt}]$	1.13
Predicted environmental concentration in food (considering that predators feed at 50% on local level)	**$PEC_{oral,predator}$**	**$[mg.kg^{-1}_{wet\ earthworm}]$**	**1.14E-02**

2.2.8.3 Risk characterisation

The environmental risk characterization for biocidal active substances in the context of Article 5 and Annex VI of BPR, Regulation (EU) 528/2012 involves the comparison of PEC and PNEC values for each relevant environmental compartment as well as for non-target organisms. Risk Characterisation Ratios (PEC/PNEC) are derived for the use of the wood preservative. The calculated PEC/PNEC ratios are provided for the STP, the aquatic and terrestrial compartment in the following tables.

If the PEC/PNEC ratio is below 1, this is interpreted as an acceptable risk to the environment.

Calculated PEC/PNEC values are summarized below, values above 1 are marked with red color.

Propiconazole			**PEC/PNEC$_S$** urface water	**PEC/PNEC** STP	**PEC/PNEC$_{Sedi}$** ment	**PECPNEC$_s$** oil	**PEC$_{groundw}$** ater **(µg/l)**
Preventive							
Industrial processes							
Application phase	Automated spraying (large plant)		2.46	0.00	6.57	0.64	2.20
	Short dipping		0.49	0.00	1.31	0.13	0.44
	Vacuum pressure		0.63	0.00	01.68	0.16	0.56
Storage phase	Automated spraying (Time 1)		0.64		1.72	50.50	301.00
	Automated spraying (Time 2)		0.64		1.72	12300.00	173300.00
	Short dipping (Time 1)		0.23		0.60	20.00	119.00
	Short dipping (Time 2)		0.23		0.60	4870.00	29000.00
	Vacuum pressure (Time 1)		01.05		12.83	125.00	745.00
	Vacuum pressure (Time 2)		1.05		2.83	30400.00	4181000.00
Service Life Automated Spraying and Dipping	House (Time 1)					0.06	0.09
	House (Time 2)					0.35	2.08
	Noise barrier (Time 1)		0.00	0.00	0.00	0.01	0.04
	Noise barrier (Time 2)		0.00	0.00	0.00	0.03	0.16
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time 2)		0.00		0.00		
Service Life - Vacuum pressure	House (Time 1)					3.15	15.60
	House (Time 2)					0.10	0.62
	Noise barrier (Time 1)		0.03	0.00	0.08	1.18	7.02
	Noise barrier (Time 2)		0.00	0.00	0.00	0.04	0.23
	Bridge over pond (Time 1)		0.12		0.32		
	Bridge over pond (Time 2)		0.00		0.00		
In situ							
Aplication - Brushing	House	Professional				1.05	6.24
		Non-professional				1.74	10.40
	Fence	Professional				0.87	5.19
		Non-professional				1.45	8.65
	Bridge	Professional	0.03		0.07		
		Non-professional	0.05		0.12		
Aplication - Spray	House	Professional				11.50	68.30

Service life-Brushing-professional	House (Time 1)					0.83	4.11
	House (Time 2)					0.22	1.31
	Fence (Time 1)					0.69	4.11
	Fence (Time 2)					0.18	1.09
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time 2)		0.00		0.01		
Service life-Brushing-Non-professional	House (Time 1)					1.37	6.78
	House (Time 2)					0.22	1.31
	Fence (Time 1)					1.14	6.78
	Fence (Time 2)					0.18	1.09
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time 2)		0.00		0.01		
Service life--Spray	House (Time 1)					0.79	4.72
	House (Time 2)					0.22	1.31
Curative							
In situ							
Aplication-Brushing	House	Professional				1.22	7.26
		Non-professional				2.03	12.10
	Fence	Professional				1.01	6.04
		Non-professional				1.69	10.10
	Bridge	Professional	0.03		0.08		
		Non-professional	0.05		0.14		
Aplication-Spray	House	Professional				13.30	79.50
Aplication-Injection	Pole	Professional				0.06	0.34
Service life-Brushing-professional	House (Time 1)					0.96	4.75
	House (Time 2)					0.22	1.31
	Fence (Time 1)					0.80	4.75
	Fence (Time 2)					0.18	1.09
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time 2)		0.00		0.01		
Service life-Brushing-Non-professional	House (Time 1)					1.59	7.89
	House (Time 2)					0.22	1.31
	Fence (Time 1)					1.32	7.89
	Fence (Time 2)					0.18	1.09
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time		0.00		0.01		

	2)					
Service life-Spray	House (Time 1)				0.92	5.47
	House (Time 2)				0.22	1.31
Service life-Injection	Pole (Time1)				0.04	0.27
	Pole (Time2)				0.01	0.04

Tebuconazole		**PEC/PNEC$_S$** urface water	**PEC/PNEC** STP	**PEC/PNEC$_{Sedi}$** ment	**PECPNEC$_s$** oil	**PEC$_{groundw}$** ater **(µg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)	1.65	0.05	0.07	0.07	0.22
	Short dipping	0.33	0.01	0.01	0.01	0.04
	DVacuum pressure	0.42	0.01	0.02	0.02	0.06
Storage phase	Automated spraying (Time 1)	4.79		0.19	55.50	315.00
	Automated spraying (Time 2)	4.79		0.19	13500.00	276600.00
	Short dipping (Time 1)	1.65		0.07	21.50	122.00
	Short dipping (Time 2)	1.65		0.07	5240.00	729700.00
	Vacuum pressure (Time 1)	01.82		0.07	31.60	179.00
	Vacuum pressure (Time 2)	1.82		0.07	7700.00	143700.00
Service Life Automated Spraying and Dipping	House (Time 1)				0.02	0.09
	House (Time 2)				0.07	0.42
	Noise barrier (Time 1)	0.00	0.00	0.00	0.01	0.04
	Noise barrier (Time 2)	0.00	0.00	0.00	0.03	0.16
	Bridge over pond (Time 1)	0.01		0.00		
	Bridge over pond (Time 2)	0.04		0.00		
Service Life - Vacuum pressure	House (Time 1)				3.06	14.40
	House (Time 2)				0.10	0.56
	Noise barrier (Time 1)	0.00	0.00	0.00	1.15	6.50
	Noise barrier (Time 2)	0.00	0.00	0.00	0.04	0.21
	Bridge over pond (Time 1)	1.31		0.05		
	Bridge over pond (Time 2)	0.05		0.00		
In situ						
Aplication - Brushing	House				1.05	5.94
					0.17	9.90
	Fence				8.71	4.94
					1.45	8.24
	Bridge		0.19	0.01		

			0.31		0.01		
Aplication - Spray	House					11.50	65.30
Service life-Brushing-professional	House (Time 1)					0.82	37.803.87
	House (Time 2)					0.22	1.25
	Fence (Time 1)					0.68	3.78
	Fence (Time 2)					0.18	1.04
	Bridge over pond (Time 1)		0.01		0.00		
	Bridge over pond (Time 2)		0.10		0.00		
Service life-Brushing-Non-professional	House (Time 1)					1.35	6.38
	House (Time 2)					0.22	1.25
	Fence (Time 1)					1.12	6.38
	Fence (Time 2)					0.18	1.04
	Bridge over pond (Time 1)		0.01		0.00		
	Bridge over pond (Time 2)		0.10		0.00		
Service life--Spray	House (Time 1)					0.78	4.44
	House (Time 2)					0.22	1.25
Curative							
In situ							
Aplication -Brushing	House					1.22	6.91
						2.03	11.50
	Fence					1.01	5.75
						1.69	9.58
	Bridge		0.22		0.01		
			0.36		0.01		
Aplication -Spray	House					13.30	75.50
Aplication -Injection	Pole					0.06	0.00
Service life-Brushing-professional	House (Time 1)					0.95	4.47
	House (Time 2)					0.22	1.25
	Fence (Time 1)					0.79	4.47
	Fence (Time 2)					0.18	1.04
	Bridge over pond (Time 1)		0.01		0.00		
	Bridge over pond (Time 2)		0.10		0.00		
Service life-Brushing-Non-professional	House (Time 1)					1.57	7.41
	House (Time 2)					0.22	1.25
	Fence (Time 1)					1.31	7.41
	Fence (Time 2)					0.18	1.04
	Bridge over pond (Time 1)		0.01		0.00		

	Bridge over pond (Time 2)	0.10		0.00		
Service life-Spray	House (Time 1)				0.91	5.14
	House (Time 2)				0.22	1.25
Service life-Injection	Pole (Time1)				0.04	0.25
	Pole (Time2)				0.00	0.01

Cypermethrin			**PEC/PNEC$_S$** surface water	**PEC/PNEC** STP	**PEC/PNEC$_{Sediment}$**	**PECPNEC$_s$** oil	**PEC$_{groundwater}$ (µg/l)**
Preventive							
Industrial processes							
Application phase	Automated spraying (large plant)		0.23	0.00	0.69	0.01	0.00
	Short dipping		0.05	0.00	0.14	0.00	0.00
	DVacuum pressure		0.06	0.00	0.18	0.00	0.00
Storage phase	Automated spraying (Time 1)		377.50		1132.00	19.06	0.11
	Automated spraying (Time 2)		377.50		1132.00	4629.63	51.70
	Short dipping (Time 1)		117.75		354.00	6.70	0.06
	Short dipping (Time 2)		117.75		354.00	1633.99	14.80
	Vacuum pressure (Time 1)		7151.50		2454.00	11.55	0.10
	Vacuum pressure (Time 2)		151.50		454.00	2799.56	25.30
Service Life Automated Spraying and Dipping	House (Time 1)					0.00	0.00
	House (Time 2)					0.01	0.00
	Noise barrier (Time 1)		0.00	0.00	0.01	0.00	0.00
	Noise barrier (Time 2)		0.00	0.00	0.01	0.00	0.00
	Bridge over pond (Time 1)		0.06		0.07		
	Bridge over pond (Time 2)		0.08		0.24		
Service Life - Vacuum pressure	House (Time 1)					0.00	0.01
	House (Time 2)					0.01	0.00
	Noise barrier (Time 1)		0.01	0.00	0.03	0.30	0.00
	Noise barrier (Time 2)		0.00	0.00	0.00	0.00	0.00
	Bridge over pond (Time 1)		10.28		30.80		
	Bridge over pond (Time 2)		0.10		0.29		
In situ							
Aplication - Brushing	House	Professional				0.67	0.01
		Non-professional				1.11	0.01
	Fence	Professional				0.55	0.01

		Non-professional				0.92	0.01
	Bridge	Professional	27.00		81.00		
		Non-professional	45.00		135.00		
Aplication - Spray	House	Professional				7.29	0.07
Service life-Brushing-professional	House (Time 1)					1.49	0.00
	House (Time 2)					0.02	0.00
	Fence (Time 1)					0.17	0.00
	Fence (Time 2)					0.02	0.00
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time 2)		0.20		0.60		
Service life-Brushing-Non-professional	House (Time 1)					1.49	0.00
	House (Time 2)					0.02	0.00
	Fence (Time 1)					0.28	0.00
	Fence (Time 2)					0.02	0.00
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time 2)		0.20		0.60		
Service life--Spray	House (Time 1)					0.19	0.00
	House (Time 2)					0.02	0.00
Curative							
In situ							
Aplication -Brushing	House	Professional				0.77	0.01
		Non-professional				1.29	0.01
	Fence	Professional				0.64	0.01
		Non-professional				1.07	0.01
	Bridge	Professional	31.50		94.20		
		Non-professional	52.25		157.00		
Aplication -Spray	House	Professional				8.47	0.08
Aplication -Injection	Pole	Professional				0.04	0.00
Service life-Brushing-professional	House (Time 1)					1.49	0.00
	House (Time 2)					0.02	0.00
	Fence (Time 1)					0.19	0.00
	Fence (Time 2)					0.02	0.00
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time		0.20		0.60		

	2)					
Service life-Brushing-Non-professional	House (Time 1)				1.49	0.00
	House (Time 2)				0.02	0.00
	Fence (Time 1)				0.32	0.00
	Fence (Time 2)				0.02	0.00
	Bridge over pond (Time 1)	0.06		0.17		
	Bridge over pond (Time 2)	0.20		0.60		
Service life-Spray	House (Time 1)				0.22	0.00
	House (Time 2)				0.02	0.00
Service life-Injection	Pole (Time1)				0.01	0.00
	Pole (Time2)				0.00	0.00

IPBC		**PEC/PNEC$_S$** surface water	**PEC/PNEC** STP	**PEC/PNEC$_{Sediment}$**	**PECPNEC$_s$** oil	**PEC$_{groundwater}$ (µg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)	35.80	0.41	35.74	0.05	0.02
	Short dipping	7.14	0.08	7.13	0.01	0.00
	DVacuum pressure	49.10	0.10	49.12	0.01	0.00
Storage phase	Automated spraying (Time 1)	7.98		7.99	1050.00	1850.00
	Automated spraying (Time 2)	7.98		7.99	254545.45	449000.00
	Short dipping (Time 1)	2.76		2.76	411.36	726.00
	Short dipping (Time 2)	2.76		2.76	100000.00	176000.00
	Vacuum pressure (Time 1)	12.70		12.70	534.09	943.00
	Vacuum pressure (Time 2)	2.70		2.70	130000.00	230000.00
Service Life Automated Spraying and Dipping	House (Time 1)				0.00	0.01
	House (Time 2)				0.00	0.01
	Noise barrier (Time 1)	0.00	0.00	0.00	0.00	0.00
	Noise barrier (Time 2)	0.00	0.00	0.00	0.00	0.00
	Bridge over pond (Time 1)	0.00		0.00		
	Bridge over pond (Time 2)	0.00		0.00		
Service Life - Vacuum pressure	House (Time 1)				0.63	0.92
	House (Time 2)				0.00	0.01
	Noise barrier (Time 1)	0.35	0.00	0.35	0.23	0.41
	Noise barrier (Time 2)	0.00	0.00	0.00	0.00	0.00
	Bridge over pond (Time	0.03		0.03		

	1)						
	Bridge over pond (Time 2)		0.00		0.00		
In situ							
Aplication - Brushing	House	Professional				23.86	42.00
		Non-professional				39.55	70.00
	Fence	Professional				19.80	35.00
		Non-professional				32.95	58.30
	Bridge	Professional	0.37		0.37		
		Non-professional	0.62		0.62		
Aplication - Spray	House	Professional				261.36	460.00
Service life- Brushing- professional	House (Time 1)					0.00	0.01
	House (Time 2)					0.01	0.02
	Fence (Time 1)					0.00	0.01
	Fence (Time 2)					0.01	0.02
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time 2)		0.00		0.00		
Service life- Brushing- Non-professional	House (Time 1)					0.00	0.01
	House (Time 2)					0.01	0.02
	Fence (Time 1)					0.00	0.01
	Fence (Time 2)					0.01	0.02
	Bridge over pond (Time 1)		0.00		0.00		
	Bridge over pond (Time 2)		0.00		0.00		
Service life-- Spray	House (Time 1)					0.00	0.01
	House (Time 2)					0.01	0.02
Curative							
In situ							
Aplication -Brushing	House	Professional				27.73	48.90
		Non-professional				46.14	81.40
	Fence	Professional				22.95	40.60
		Non-professional				38.41	67.70
	Bridge	Professional	0.43		0.43		
		Non-professional	0.72		0.72		
Aplication -Spray	House	Professional				302.27	535.00
Aplication	Pole	Professional				1.29	2.28

-Injection						
Service life-Brushing-professional	House (Time 1)				0.00	0.01
	House (Time 2)				0.01	0.02
	Fence (Time 1)				0.32	0.06
	Fence (Time 2)				0.01	0.02
	Bridge over pond (Time 1)	0.00		0.00		
	Bridge over pond (Time 2)	0.00		0.00		
Service life-Brushing-Non-professional	House (Time 1)				0.00	0.01
	House (Time 2)				0.01	0.02
	Fence (Time 1)				0.00	0.06
	Fence (Time 2)				0.01	0.02
	Bridge over pond (Time 1)	0.00		0.00		
	Bridge over pond (Time 2)	0.00		0.00		
Service life-Spray	House (Time 1)				0.00	0.01
	House (Time 2)				0.01	0.02
Service life-Injection	Pole (Time1)				0.00	0.00
	Pole (Time2)				0.00	0.00

PBC		**PEC/PNEC$_{Surface\ water}$**	**PEC/PNEC$_{STP}$**	**PEC/PNEC$_{Sediment}$**	**PECPNEC$_{soil}$**	**PEC$_{groundwater}$ (µg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)	0.24			0.00	0.04
	Short dipping	0.05			0.00	0.01
	DVacuum pressure	0.06			0.00	0.01
Storage phase	Automated spraying (Time 1)	0.05			17.12	706.09
	Automated spraying (Time 2)	0.05			4149.26	171173.94
	Short dipping (Time 1)	0.02			6.71	276.63
	Short dipping (Time 2)	0.02			1630.07	67246.91
	Vacuum pressure (Time 1)	0.02			8.71	359.16
	Vacuum pressure (Time 2)	0.02			2119.09	87420.98
Service Life Automated Spraying	House (Time 1)				0.00	0.00
	House (Time 2)				0.00	0.00
	Noise barrier (Time 1)	0.00			0.00	0.00
	Noise barrier (Time 2)	0.00			0.00	0.00
	Bridge over pond (Time	0.00				

and Dipping	1)						
	Bridge over pond (Time 2)		0.00				
Service Life - Vacuum pressure	House (Time 1)					0.01	0.42
	House (Time 2)					0.00	0.00
	Noise barrier (Time 1)		0.00			0.00	0.16
	Noise barrier (Time 2)		0.00			0.00	0.00
	Bridge over pond (Time 1)		0.00				
	Bridge over pond (Time 2)		0.00				
In situ							
Aplication - Brushing	House	Professional				0.39	16.05
		Non-professional				0.64	26.59
	Fence	Professional				0.32	13.31
		Non-professional				0.54	22.16
	Bridge	Professional	0.00				
		Non-professional	0.00				
Aplication - Spray	House	Professional				4.26	175.76
Service life-Brushing-professional	House (Time 1)					0.00	0.00
	House (Time 2)					0.00	0.01
	Fence (Time 1)					0.00	0.00
	Fence (Time 2)					0.00	0.01
	Bridge over pond (Time 1)		0.00				
	Bridge over pond (Time 2)		0.00				
Service life-Brushing-Non-professional	House (Time 1)					0.00	0.00
	House (Time 2)					0.00	0.01
	Fence (Time 1)					0.00	0.00
	Fence (Time 2)					0.00	0.01
	Bridge over pond (Time 1)		0.00				
	Bridge over pond (Time 2)		0.00				
Service life--Spray	House (Time 1)					0.00	0.00
	House (Time 2)					0.00	0.01
Curative							
In situ							
Aplication -Brushing	House	Professional				0.45	18.65
		Non-professional				0.75	31.03
	Fence	Professional				0.37	15.44

		Non-professional				0.63	25.83
	Bridge	Professional	0.00				
		Non-professional	0.00				
Aplication-Spray	House	Professional				4.93	203.27
Aplication-Injection	Pole	Professional				0.02	0.87
Service life-Brushing-professional	House (Time 1)					0.00	0.00
	House (Time 2)					0.00	0.01
	Fence (Time 1)					0.01	0.22
	Fence (Time 2)					0.00	0.01
	Bridge over pond (Time 1)		0.00				
	Bridge over pond (Time 2)		0.00				
Service life-Brushing-Non-professional	House (Time 1)					0.00	0.00
	House (Time 2)					0.00	0.01
	Fence (Time 1)					0.00	0.00
	Fence (Time 2)					0.00	0.01
	Bridge over pond (Time 1)		0.00				
	Bridge over pond (Time 2)		0.00				
Service life-Spray	House (Time 1)					0.00	0.00
	House (Time 2)					0.00	0.01
Service life-Injection	Pole (Time1)					0.00	0.00
	Pole (Time2)					0.00	0.00

1,2,3 Triazole		**PEC/PNEC$_S$** surface water	**PEC/PNEC** STP	**PEC/PNEC$_{Sediment}$**	**PECPNEC$_s$** oil	**PEC$_{groundwater}$ (µg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)				0.72	3.19
	Short dipping				0.14	0.64
	Vacuum pressure				0.18	0.81
Storage phase	Automated spraying (Time 1)				68.96	307.14
	Automated spraying (Time 2)				16792.68	74789.14
	Short dipping (Time 1)				27.20	121.12
	Short dipping (Time 2)				6623.17	29497.44
	Double vacuum (Time 1)				144.90	645.35
	Double vacuum (Time 2)				35243.90	156964.86

Service Life Automated Spraying and Dipping	House (Time 1)					0.07	0.32
	House (Time 2)					0.40	1.79
	Noise barrier (Time 1)					0.01	0.04
	Noise barrier (Time 2)					0.04	0.16
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service Life - Vacuum pressure	House (Time 1)					4.20	18.72
	House (Time 2)					0.14	0.62
	Noise barrier (Time 1)					1.58	7.02
	Noise barrier (Time 2)					0.05	0.23
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
In situ							
Aplication - Brushing	House	Professional				1.41	6.27
		Non-professional				1.95	8.69
	Fence	Professional				3.08	13.72
		Non-professional				1.95	8.66
	Bridge	Professional					
		Non-professional					
Aplication - Spray	House	Professional				15.43	68.71
Service life-Brushing-professional	House (Time 1)					1.11	4.96
	House (Time 2)					0.30	1.31
	Fence (Time 1)					0.92	4.11
	Fence (Time 2)					0.25	1.09
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Brushing-Non-professional	House (Time 1)					1.83	8.16
	House (Time 2)					0.30	1.31
	Fence (Time 1)					1.52	6.79
	Fence (Time 2)					0.25	1.09
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life--Spray	House (Time 1)					1.06	4.72
	House (Time 2)					0.30	1.31
Curative							

In situ							
Aplication -Brushing	House	Professional				1.64	7.29
		Non-professional				2.72	12.13
	Fence	Professional				1.35	6.03
		Non-professional				2.27	10.10
	Bridge	Professional					
		Non-professional					
Aplication -Spray	House	Professional				17.84	79.46
Aplication -Injection	Pole	Professional				0.08	0.34
Service life-Brushing-professional	House (Time 1)					1.29	5.74
	House (Time 2)					0.30	1.31
	Fence (Time 1)					1.07	4.75
	Fence (Time 2)					0.25	1.09
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Brushing-Non-professional	House (Time 1)					2.13	9.48
	House (Time 2)					0.30	1.31
	Fence (Time 1)					1.77	7.88
	Fence (Time 2)					0.25	1.09
	Bridge over pond (Time 1)						
	Bridge over pond (Time 2)						
Service life-Spray	House (Time 1)					1.23	5.47
	House (Time 2)					0.30	1.31
Service life-Injection	Pole (Time1)					0.06	0.26
	Pole (Time2)					0.01	0.03

Atmosphere

The product JC-CTPI-3 is a liquid product and the active substances Cypermethrin, Tebuconazole, Propiconazole and IPBC show very low vapour pressure.

Only negligible exposure to the atmosphere is expected and no threat to the atmosphere is expected.

Sewage treatment plant (STP)

For Sewage Treatment Plant (STP), all PEC/PNEC ratios are lower than 1 for all the evaluated scenarios. So, we can conclude that the use of JC-CTPI-3 represent acceptable risks for STP

Aquatic compartment

For the aquatic compartment (surface-water and sediment), risks were identified during the application phase (brushing) and during the service life for the bridge over pond scenario by double

vacuum treatment for Time 1. Those risks are primarily due to the high toxicity of Cypermethrin to aquatic and sediment organisms. The risk found for the industrial application phase (including storage), is not relevant based on mandatory risk mitigation measures for wood treatments plants.

Therefore, the application phase by brushing near surface water is cuse of concern for the acuatic compartment (including sediment) and should be prevented

Terrestrial compartment

For the soil, the industrial storage scenario provided elevated PEC/PNEC ratios for TIME 1 and 2. According to the revised ESD for PT 8 it can be assumed, that most storage places are sealed and run-off from storage places will be collected and disposed of safely – this is not taken into account in the calculations.

Considering that the calculated PEC/ PNEC ratios are above 1 for soil, brushing and injectioning application phase are cause of concern for the terrestrial compartment, unless direct releases to soil is prevented by covering the soil during application.

The risk for the terrestrial compartment after application by spraying is considered unacceptable.

During service life of treated wood, considering that calculated PEC/PNEC ratios for terrestrial compartment is above 1 only in TIME 1, the risks are considered acceptable

Groundwater

The estimations of releases of active substances, and their relevant degradation products for the groundwater compartment, were calculated with the FOCUS PEARL v.4.4.4 software.
According to the paragraph 578 of the PT08-ESD (2013), the estimation of releases to groundwater is relevant for susbstance with:

- K_{oc} < 500 $l.kg^{-1}$ and
- $DT50_{soil}$ > 21 d**.**

Considering that:

Substance	**K_{oc} [$l.kg^{-1}$]**	**$DT50_{soil,12°C}$ [d]**
Tebuconazole	992	77
Propiconazole	944	82
1,2,4-triazole (*)	89	114.7 (**)
Cypermethrin	575000	17.2
IPBC	134.5	1.96E-01
PBC(***)	198.1	9.50

(*) – Relevant degradation product of tebuconazole and propiconazole in soil, with a maximum formation rate of 9% and 43.23% of applied radioactivity, respectively.
(**) – Calculated according to the arrhenius equation with a DT_{50} at 20°C of 60.5 days.
(***) – Relevant metabolite of IPBC in all environmental compartments assuming 100% of applied radioactivity.

Estimations of releases to groundwater is considered relevant by ES-CA for the following substances:

- Tebuconazole;
- Propiconazole;
- IPBC;

- PBC;
- 1,2,4-triazole.

According to the PT08-ESD (2013), a groundwater assessment is only necessary for the house scenario, which can be considered to be the worst case for soil exposure, thus covering all other scenarios.

Consequently to the environmental risk assessment performed for the application phase, it is recommended on the label to cover the soil during the application by brushing or spraying. Then, no emission into the soil occurs during the application. Therefore, only emissions into the soil during the service-life of the treated wood due to leaching are taken into account to estimate the contamination of the groundwater.

The scenario for the groundwater exposure assessment for wood preservatives described in the supplement of the appendix 4 of the PT08-ESD, based on leaching values.

Input parameter	**Unit**	**Value**				
		Tebuco-nazole	**Propico-nazole**	**IPBC**	**PBC**	**1,2,4-triazole**
Physicochemical parameters						
Molar mass	$g.mol^{-1}$	307.8	342.2	281.1	155.2	69.1
Water solubility (25 °C)	$mg.l^{-1}$	29	100	168	2860	700 000
Molar enthalpy of dissolution	$kJ.mol^{-1}$	27				
Saturated vapour pressure	Pa	1.70E-06 (20°C)	5.60E-05 (25°C)	2.36E-03 (25°C)	1.88E+01 (25°C)	2.20E-01 (20°C)
Molar enthalpy of vaporisation	$kJ.mol^{-1}$	95				
Diffusion coefficient in water (20 °C)	$m^2.d^{-1}$	4.3E-05				
Diffusion coefficient in air (20 °C)	$m^2.d^{-1}$	0.43				
Degradation parameters						
Half-life (12°C, pF2)	d	77	82	1.96E-01	9.50	114.7
Arrhenius activation energy	$kJ.mol^{-1}$	65.4				
Exponent of moisture correction function	-	0.7				
Sorption parameters						
K_{oc} value	$l.kg^{-1}$	992	944	134.5	198.1	89
K_{om}value (20°C)	$ml.g^{-1}$	575.41	547.56	78.02	114.91	51.62
Freundlich exponent 1/n	-	1				
Method of subroutine description	-	pH independent				
Crop related parameters						
Crop uptake factor	-	0				
Application Schemes						
Q*leach, TIME2 (5 years)	$kg.m^{-2}$	1.11E-04	1.13E-04	9.02E-05	n.r.	n.r.
Total leachable area	$m^2.ha^{-1}$	2 000				
Fraction of house	-	0.5				

Input parameter	Unit	Value				
surface exposed to weather						
Service life	year	5				
Number of application per year	-	10				
Dosage per FOCUS application	kg.ha^{-1}.application^{-1}	2.22E-04	2.80E-03	2.26E-04	n.r.	n.r.
Fraction transformed	-	n.r.	n.r.	n.r.	1 (IPBC)	0.09 (Tebuconazole) 0.43 (Propiconazole)
Application type	-	To the soil surface				
Repeat interval for years	-	1				
Date	-	10/01/1901				
		15/02/1901				
		24/03/1901				
		29/04/1901				
		05/06/1901				
		11/07/1901				
		17/08/1901				
		22/09/1901				
		29/10/1901				
		04/12/1901				
Crops Application						
Crop(s)	-	Grassland				
Selected Locations		CHATEAUDUN				
		HAMBURG				
		JOIKIONEN				
		KREMSMUENSTER				
		OKEHAMPTON				
		PIACENZA				
		PORTO				
		SEVILLA				
		THIVA				

n.r.: not relevant

The results are listed in the table below.

Scenario	Tebuconazole [µg.l^{-1}]	Propiconazole [µg.l^{-1}]	1,2,4-triazole [µg.l^{-1}]	IPBC [µg.l^{-1}]	PBC [µg.l^{-1}]
CHATEAUDUN	< 0.001	< 0.001	0.000136	< 0.001	< 0.001
HAMBURG	< 0.001	< 0.001	0.000491	< 0.001	< 0.001

JOIKIONEN	< 0.001	< 0.001	0.000087	< 0.001	< 0.001
KREMSMUENSTER	< 0.001	< 0.001	0.000252	< 0.001	< 0.001
OKEHAMPTON	< 0.001	< 0.001	0.000468	< 0.001	< 0.001
PIACENZA	< 0.001	< 0.001	0.000388	< 0.001	< 0.001
PORTO	< 0.001	< 0.001	0.000208	< 0.001	< 0.001
SEVILLA	< 0.001	< 0.001	0.000008	< 0.001	< 0.001
THIVA	< 0.001	< 0.001	0.000044	< 0.001	< 0.001

Primary and secondary poisoning

Secondary poisoning is relevant only for the active substance cypermethrin. Therefore, the secondary poisoning was assessed for the service life for wood treated by surface treatment, considered as a worst case. PEC and risk ratios for the risk of secondary poisoning for birds and mammals are summarised in the following table.

	PEC/PNEC$_{birds}$ ($PNEC_{oral,bird}$ = 33.3 mg/kg food)	**PEC/PNEC$_{mammals}$** ($PNEC_{oral,small\ mammal}$ = 3.33 mg/kg food)
Via fish	$5.1 \cdot 10^{-4}$	$5.1 \cdot 10^{-3}$
Via earthworm	$3.42 \cdot 10^{-4}$	$3.42 \cdot 10^{-3}$

Based on these PEC/PNEC ratios, it can be concluded that the use of the product will not pose a significant risk to the top predators.

Mixture toxicity

JC-CTPI-3 contains four active substances, all of which are classified as dangerous for the environment. Moreover, two other ingredients are potential substances of concern with regard to the environment. These substances are the additive butylhydroxytoluene and the solvent White Spirit.

Classification for the substances of concern			
Component	**Env. Classification**	**M-Factor**	**Concentration of a.s. in the product (%)**
White Spirit	H411	-	>70
Butylhydroxytoluene	H400, H410	M=1	0.80

BHT (2,6-di-tert.-butyl-p cresol, CAS 128-37-0) and White spirit meet the criteria for classification as hazardous according to Regulation (EC) No 1272/2008, and are present in the biocidal product at a concentration of 0.8% and >70% respectively that would lead to the product to be regarded as hazardous within the meaning of that Regulation.

Nevertheless, a calculation has been conducted to establish the ecotoxicological relevance of these substances of potential concern within context of the product.

Summary of relative toxic units						
	White Spirit	BHT	IPBC	Cypermethrin	Propiconazole	Tebuconazole
Content in the product [w/w %]	70	0,8	0,3	0,175	0,3	0,3
Concerned environmental compartment 1 (Aquatic compartment)						
Fish (LC50(96h))	73,15	4,18	9,36	12,92	0,24	0,14
Daphnid (EC50(48h))	65,71	1,10	1,57	31,04	0,49	0,09
Algae (ErC50(72h))	61,20	2,80	35,76	0,00	0,09	0,15

The relative toxic units calculation shows that the BHT drives potential toxicity to fish (4%), daphnia (1%) and algae (3%). So, BHT should not be considered as a Substance of Concern taken into account the toxicity of the active substances.

However, White Spirit (SoC) drives potential toxicity to fish (73%), daphnia (66%) and algae (61%). So, White Spirit should be considered as a Substance of Concern. However, White spirit is a petroleum product and the PNEC cannot be possible established since the majority of its mass is comprised of chemical components that cannot be accurately described by a chemical structure and for which there is an absence of ecotoxicological data.

According to Figure 29 from section 9 of BPR Guideline (Mixture Toxicity Assesment), we have not PEC/PNEC for all relevant substances in all relevant environmental compartments and the test with the mixture carried out by the applicant have not a reliability appropriate (see section Further Ecotoxicological studies) and do not give information about the SoC. So, a qualitative assessment is carried out by ES-CA for this coformulant.

The following data is obtained from FDS of white spirit provided by the applicant.

EL50/48h = 1 - 2 mg/l (daphnia magna) (OECD Guideline 202)

EL50/72h = 1 - 3 mg/l (pseudokirchnerella subcapitata) (OECD Guideline 201)

LL50/96h = 2 - 5 mg/l (oncorhynchus mykiss) (OECD Guideline 203)

NOEL/21d = 0,48 mg/l (daphnia magna) (OECD Guideline 211)

NOEL/28d = 0,098 mg/l (oncorhynchus mykiss) (PETROTOX model) based on mortality.

Comparing this data with the ecotoxicological data from de active subtances, the toxicity of the active substances is higher and the environmental risk assessment for the product based on the four active substances and metabolites would cover the toxicity from the coformulant.

Subtance	Coformulant	IPBC	Cypermethrin	Propiconazole	Tebuconazole
Content in the product (%)	70	0,3	0,175	0,3	0,3
Aquatic compartment					
Algae EC50(72h) [mg/L]	1	0,022		9	5,3
Daphnid EC50(48h) [mg/L]	1	0,16	0,00471	0,51	2,79
Fish LC50(96h) [mg/L]	2	0,067	0,00283	2,6	4,4
AlgaeNOEC(72h) [mg/L]		0,0046		0,46	0,56
Daphnid NOEC (21d) [mg/L]	0,48	0,05	0,00004	0,11	0,01
Fish NOEC (28d) [mg/L]	0,098	0,0084	0,000463	0,068	0,01
Soil Compartment					
Earthworms LC50(96h)mg/kg ww	677,9	885	100		470

In the first tier a PEC/PNEC summation based on effect data (most sensitive organism) for the individual substances is performed for each environmental compartment of concern.

[(PEC/PNEC)product = Σ (PEC/PNEC)individual substances] for each environmental compartment

(PEC/PNEC)product values for each environmental compartment of concern are summarized below.

ΣPEC/PNEC		**$PEC/PNEC_{Surface\ water}$**	**PEC/PNEC STP**	**$PEC/PNEC_{Sediment}$**	**$PECPNEC_{oil}$**	**$PEC_{groundwater}$ (µg/l)**
Preventive						
Industrial processes						
Application phase	Automated spraying (large plant)	40.37	0.46	43.07	1.48	5.66
	Short dipping	8.05	0.09	8.59	0.30	1.13
	Vacuum pressure	10.23	0.12	10.99	0.38	1.44
Storage phase	Automated spraying (Time 1)	390.96		1141.91	1261.14	3479.35
	Automated spraying (Time 2)	390.96		1141.91	305917.03	6844914.78
	Short dipping (Time 1)	122.40		357.43	493.46	1364.81
	Short dipping (Time 2)	122.40		357.43	119997.22	3331459.15
	Vacuum pressure (Time 1)	7157.09		2459.61	855.85	22871.61
	Vacuum pressure (Time 2)	7157.09		2459.61	208262.55	4699111.13
Service Life Automated Spraying and Dipping	House (Time 1)				0.16	0.52
	House (Time 2)				0.83	4.29
	Noise barrier (Time 1)	0.01	0.00	0.01	0.03	0.13
	Noise barrier (Time 2)	0.01	0.00	0.01	0.10	0.49
	Bridge over pond (Time 1)	0.06		0.07		
	Bridge over pond (Time 2)	0.12		0.24		
Service Life - Vacuum pressure	House (Time 1)				11.05	50.07
	House (Time 2)				0.35	1.80
	Noise barrier (Time 1)	0.39	0.00	0.46	4.44	21.11
	Noise barrier (Time 2)	0.00	0.00	0.00	0.13	0.68
	Bridge over pond (Time 1)	11.73		31.20		
	Bridge over pond (Time 2)	0.15		0.30		

In situ							
Aplication - Brushing	House	Professional				28.43	76.51
		Non-professional				45.17	125.60
	Fence	Professional				33.33	72.17
		Non-professional				39.26	106.02
	Bridge	Professional	27.58		81.45		
		Non-professional	45.97		135.75		
Aplication - Spray	House	Professional				311.34	838.13
Service life-Brushing-professional	House (Time 1)					4.26	46.8812.95
	House (Time 2)					0.77	3.90
	Fence (Time 1)					2.47	46.03
	Fence (Time 2)					0.64	3.25
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time 2)		0.31		0.61		
Service life-Brushing-Non-professional	House (Time 1)					6.05	21.33
	House (Time 2)					0.77	3.90
	Fence (Time 1)					4.07	19.96
	Fence (Time 2)					0.64	3.25
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time 2)		0.31		0.61		
Service life--Spray	House (Time 1)					2.83	13.89
	House (Time 2)					0.77	3.90
Curative							
In situ							
Aplication -Brushing	House	Professional				33.03	89.01
		Non-professional				54.96	148.17
	Fence	Professional				27.35	73.87
		Non-professional				45.76	123.32
	Bridge	Professional	32.18		94.72		
		Non-professional	53.38		157.87		

Aplication -Spray	House	Professional				360.12	972.81
Aplication -Injection	Pole	Professional				1.54	3.83
Service life-Brushing-professional	House (Time 1)					4.70	14.97
	House (Time 2)					0.77	3.90
	Fence (Time 1)					3.17	14.25
	Fence (Time 2)					0.64	3.25
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time 2)		0.31		0.61		
Service life-Brushing-Non-professional	House (Time 1)					6.78	24.79
	House (Time 2)					0.77	3.90
	Fence (Time 1)					4.72	23.24
	Fence (Time 2)					0.64	3.25
	Bridge over pond (Time 1)		0.06		0.17		
	Bridge over pond (Time 2)		0.31		0.61		
Service life-Spray	House (Time 1)					3.28	16.09
	House (Time 2)					0.77	3.90
Service life-Injection	Pole (Time1)					0.16	0.78
	Pole (Time2)					0.02	0.08

ES-CA considers that the risk found for the industrial application phase (including storage), is not relevant based on mandatory risk mitigation measures for wood treatments plants. Storage must only take place on sealed places or under cover to prevent direct release to soil. This will be stated on the label.

- Prevent any release to the environment during the product application phase as well as during the storage and the transport of treated timber;
- During the application phase, prevent any release of cleaning water (after cleaning of floors, tanks, containers) to the environment (sewer, soil, water);All industrial application processes must be carried out within a contained area situated on impermeable hard standing with bunding to prevent run-off and a recovery system in place (e.g. sump).
- Freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing, or both, to prevent direct losses to soil, sewer or water, and that any losses of the product shall be collected for reuse or disposal. Before use, store the timber in an area sheltered from the weather;
- Any contaminated water/soil shall be collected, contained and treated as hazardous waste.

The use of JC-CTPI-3 represent acceptable risks for water compartment if appropriate risk mitigation measures are considered.

- To avoid unacceptable risk for the aquatic and sediment organisms, the biocidal product may only be applied to wood, which will not be used above or close to surface waters.

- A non-biocidal top coat must be applied on treated wood used outdoor, above ground to avoid leaching of active substances.

The use of JC-CTPI-3 represent acceptable risks for soil compartment if appropriate risk mitigation measures are considered.

- To avoid losses to the soil the freshly treated timber shall be stored after treatment under shelter or on impermeable hard standing or both to prevent direct losses to soil, sewer or water.
- Application should be conducted within a contained area on impermeable hard standing with bunding and any losses from the application of the product should be collected for reuse or disposal.
- A non-biocidal top coat must be applied on treated wood used outdoor, above ground to avoid leaching of active substances.

Aggregated exposure (combined for relevant emmission sources)

Not relevant.

Overall conclusion on the risk assessment for the environment of the product
The risk characterisation indicates that the uses of the biocidal product JC-CTPI-3 by the industrial processes - automated spraying, dipping and vacuum pressure – and by in situ processes -brush, spray and injection for the uses of treated wood in UC 1, UC 2 and UC3 do not represent unacceptable risks to the environment if appropriate risk mitigation measures are considered. However, the risk for the terrestrial compartment after application by spraying is considered unacceptable. Even if the soil is covered during application with a plastic sheet, this RMM only prevent all direct releases to soil via run off but the releases to soil via drift can not be depreciated. Therefore, the product cannot be authorized for wood in UC3 by "in situ" spray application.

2.2.9 Measures to protect man, animals and the environment

Please, see risks mitigation measures for authorized uses.

2.2.10 Assessment of a combination of biocidal products

Not relevant

2.2.11 Comparative assessment

The biocidal product contains four active substances, of which tebuconazole is considered to meet the criteria for substitution listed in article 10(1) of Regulation 528/2012. Therefore in accordance with Article 23 of Regulation 528/2012 a comparative assessment should be carried out for the biocidal product. Nevertheless, taking into account that a proposal no authorisation is considered, the comparative assessment cannot be done.

Product JC-CTPI-3 is a wood preservative (PT 8) which contains the active substances indicate above. The product is to be used by industrial and professional users as a preventive and curative treatement for wood, indoor and outdoor (use class 1, 2 and 3). Preventive and curative treatments are performed by superficial application. Curative treatment can also be completed by injection.

Table 2.2.11-1 Intended uses of the biocidal product: Preventive treatment

Product Type	8 Wood preservatives
Where relevant, an exact description of the authorised use	Preventive
Target organism (including, where relevant) development stage)	- Anobium punctatum De Geer-Common furniture beetle-Larvae - Hylotrupes bajulus L.-House longhorn beetle-Larvae - Coniophora puteana-Wet rot-Larvae - Poria placenta-Brown rot fungi-Larvae - Gloeophyllum trabeum-Brown rot fungi-Larvae - Coriolus versicolor-Turkey tal-Larvae - Reticulitermes sp.-Termites-Larvae
Field(s) of use	Indoor Outdoor use Use class1 to 3
Application method(s)	- Superficial application / Automated dipping - Superficial application / Automated spraying - Superficial application in situ /brush - Superficial application in situ /spray
Category(ies) of users	Industrial users Professional users

Table 2.2.11-2 Intended uses of the biocidal product: Curative treatment

Product Type	8 Wood preservatives
Where relevant, an exact description of the authorised use	Curative
Target organism (including, where relevant) development stage)	- Anobium punctatum De Geer-Common furniture beetle-Larvae - Hylotrupes bajulus L.-House longhorn beetle-Larvae - Coniophora puteana-Wet rot-Larvae - Poria placenta-Brown rot fungi-Larvae - Gloeophyllum trabeum-Brown rot fungi-Larvae - Coriolus versicolor-Turkey tal-Larvae - Reticulitermes sp.-Termites-Larvae
Field(s) of use	Indoor Outdoor use Use class 1 to 3

Application method(s)	- Superficial application / Automated dipping - Superficial application / Automated spraying - Superficial application in situ /brush - Superficial application in situ /spray (not authorized) - Injection (not authorized)
Category(ies) of users	Industrial users Professional users

Mapping of existing alternatives to the relevant BP

Identified eligible alternative BPs
The product JC-CTPI- 3 has been only compared with alternative products authorised in Spain, as the searchable SPCs and a corresponding search tool in the Register for Biocidal Products (R4BP) is currently not available, Spanish CA has used the information available to the ES CA on the 17nd of November 2020 of the biocidal products authorised under the Directive 98/8/EC or Regulation (EU) No 528/2012. In Spain 96 products PT8 have been authorised, 22 products cotain tebuconazole and 48 products contain Propiconazole, but considering that propiconazole was classified as reprotoxic 1B after 1st december of 2019 accordingly with regulation (EU) 2018/1480, products containing propiconazole are not classified as appropriate alternatives. Considering the fungicide and insecticide activity, no alternatives has been found.

Identified eligible non chemical alternatives
Considering that tebuconazole was authorized under the BPD, no public consultation was carried out by ECHA in the context of the tebuconazole approval. Consequently, no non-chemical alternatives were proposed to replace the use of this substance.
Screening phase

Consideration on whether the CFS(s) meet(s) at least one of the exclusion criteria listed in Article 5(1) but can benefit from derogation in accordance with Article 5(2) of the BPR.

Tebuconazole is not considered as meeting the exclusion criteria according to Article 5(1).

Conclusion of the screening phase:
As no alternatives have been found, the comparative assessment is finalised at this stage. The product JC-CTPI-3 is authorised for a period not exceeding 5 years in accordance with Article 23 (6).

3 ANNEXES

3.1 List of studies for the biocidal product

Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published
[redacted]	[redacted]	JC-CTPI-3. Curative action against *Lyctus brunneus*. Sponsor: QUIMICA DE MUNGUIA Laboratory: FCBA. 10, avenue de Saint-Mandé. 75012- Paris. France. Study Code: 401/12/064F/1/b/e
[redacted]	[redacted]	JC-CTPI-3. Curative action against *Anobium puctatum* larvae. Sponsor: QUIMICA DE MUNGUIA Laboratory: FCBA. 10, avenue de Saint-Mandé. 75012- Paris. France. Study code: 401/12/064F/1/a/e
[redacted]	[redacted]	Determination of the erradicant action against *Hylotrupes bajulus* (Linnaeus) larvae according to EN 1390:2006. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-3-a
[redacted]	[redacted]	Test method for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN113:1996. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-6-a
[redacted]	[redacted]	Test method for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN113:1996. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-7-a
[redacted]	[redacted]	Test method for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN113:1996. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-9-a

[redacted]	[redacted]	Determination of the protective effectiveness of a preservative treatment against blue stain in wood service, according to UNE EN 152:2012. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-5-a
[redacted]	[redacted]	Determination of the protective effectiveness of a preservative treatment against blue stain in wood service, according to UNE EN 152:2012. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-6-a
[redacted]	[redacted]	Determination of toxic values against *Reticulitermes* species according to EN 117:2005 Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-1-a
[redacted]	[redacted]	Determination of toxic values against *Reticulitermes* species according to EN 117:2005 Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-2-a
[redacted]	[redacted]	Determination of preventive action against *Reticulitermes* according to EN 118:2005. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-1-a
[redacted]	[redacted]	Determination of preventive action against *Hylotrupes bajulus* (Linnaeus): Part 1. Larvicidal effect according to EN 46-1:2009. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-5-a
[redacted]	[redacted]	Determination of preventive action against *Hylotrupes bajulus* (Linnaeus): Part 1. Larvicidal effect according to EN 46-1:2009. Sponsor: QUIMICA DE MUNGUIA

		Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-4-a
[redacted]	[redacted]	Determination of the toxic values against larvae of *Hylotrupes bajulus* (Linnaeus) according to EN 47:2005. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-3-a
[redacted]	[redacted]	Determination of the toxic values against larvae of *Hylotrupes bajulus* (Linnaeus) according to EN 47:2005. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29825-4-a
[redacted]	[redacted]	Internal method based on standar for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN 113:1996 and superficial treatment. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-7-a
[redacted]	[redacted]	Internal method based on standar for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN 113:1996 and superficial treatment. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-8-a
[redacted]	[redacted]	Internal method based on standar for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN 113:1996 and superficial treatment. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-9-a

[redacted]	[redacted]	Internal method based on standar for determining the protective effectiveness against wood destroying basidiomycetes. Determination of the toxic values according to EN 113:1996 and superficial treatment. Sponsor: QUIMICA DE MUNGUIA Laboratory: TECNALIA. Parque Cientifico y Técnologico Bizkaia. C/ Geldo, Edificio 700. E-48160. Derio-Bizkaia. España. Study code: 29826-10-a
[redacted]	[redacted]	Storage stability on 2 years at ambient temperature on a ready-to-use solvent based wood preservative "JC-CTPI-3" Sponsor: QUÍMICA DE MUNGUIA Laboratory: Laboratoire de Chimie-Ecotoxicologie. Institut Technologique FCBA Study code: 402/12/064F/j-a
[redacted]	[redacted]	Validation of analytical method and chemical analysis of active ingredient declared in the test item. Identification criteria. Stability testing. Sponsor: QUÍMICA DE MUNGUIA Laboratory: Laboratoire de Chimie-Ecotoxicologie. Institut Technologique FCBA Study code: 402/12/064F-e
[redacted]	[redacted]	Validation of analytical method according to SANCO 3029/99 rev.4 for the chemical analysis of cypermethrin in fish ecotoxicology solutions Sponsor: QUÍMICA DE MUNGUIA Laboratory: Laboratoire de Chimie-Ecotoxicologie. Institut Technologique FCBA Study code: 402/13/1076F/c-e
[redacted]	[redacted]	Determination of the corrosive properties of the test item "JC-CTPI-3 according to the UN Test C.1 Sponsor: QUÍMICA DE MUNGUIA Laboratory: Laboratoire de Chimie-Ecotoxicologie. Institut Technologique FCBA Study code: 402/21/1131Fa-e and 402/21/1171Fa-e

3.2 Output tables from exposure assessment tools

Expo_Pro_+_Non_Pro_-_JC-CTPI-3.xlsx

SoC Butyldiglycol.xlsx

3.3 New information on the active substance

3.4 Residue behaviour

Not relevant.

3.5 Summaries of the efficacy studies

All efficacy tests information is summarised in the efficacy table, section 2.2.5.5.