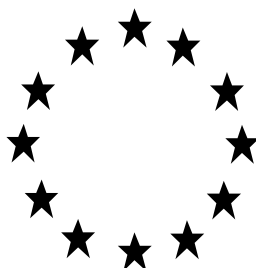


Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products

**PRODUCT ASSESSMENT REPORT OF A BIOCIDAL
PRODUCT FOR THE MAYOR CHANGE AND
RENEWAL OF A NATIONAL AUTHORISATION**



Product identifier in R4BP	IKEBANA CONSUMER BRODIFACOUM CEREAL
Product type(s):	14 (Rodenticide)
Active ingredient(s):	Brodifacoum
Case No. in R4BP	BC-BA032324-75 (NA-MAC) BC-HB019842-56 (NA-RNL)
Asset No. in R4BP	ES-0008953-0000
Evaluating Competent Authority	Spain
Internal registration/file no	ES/APP(NA)-2018-14-00323
Date	February 2018

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1. Conclusion

The assessment presented in this report includes the major change submitted by the applicant according to Implementing Regulation 354/2013 in order to decrease the content of brodifacoum active substance at a level of 0.0029% w/w due to laid down in Commission Regulation (EU) 2016/1179 of 19 July 2016 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. In addition, this report also includes the conditions for the renewal of the active substance, according Commission Regulation (EU) 2017/1381 of 25 July 2017.

This product is identical to AGRORAT BRODI-3. A letter of access has been submitted in order to use the information/data.

The initial evaluation of the biocidal product IKEBANA BRODIFACOUM CEREAL containing of brodifacoum active substance at a level of 0.005% w/w should be taken into account. As the content of the active substance has been reduced, the Spanish Competent Authority requested to the applicant changed the product name in order not to mislead the user and for enforcement tasks.

It is concluded after evaluation of new data submitted that the ready-to-use product, IKEBANA CONSUMER BRODIFACOUM CEREAL, with the active substance brodifacoum, at a level of 0.0029% w/w, may be authorised for use as a rodenticide (product-type 14). Some of conclusions to the initial assessment remains valid and the new information provided by the applicant to support the decrease of active substance allow granting the authorisation.

Physical, chemical and technical properties remain valid to the initial evaluation other than the stability tests. No long-term stability test has been submitted; therefore a post-authorisation requirement should be included in the authorisation certificate.

The conclusions about physical hazards and methods for detection and identification remain valid to the initial evaluation and no new information has been submitted.

New efficacy data, semi-field and field trials, have confirmed that IKEBANA CONSUMER BRODIFACOUM CEREAL is effective in the proposed areas of use, at the recommended dose rate.

According to Commission Regulation (EU) 2016/1179 the product IKEBANA CONSUMER BRODIFACOUM CEREAL, with the active substance brodifacoum, at a level of 0.0029% w/w is classified as SPECIFIC TARGET ORGAN TOXICITY AFTER REPEATED EXPOSURE. CATEGORY 2 (STOT RE 2); H373 May cause damage to organs (blood) through prolonged or repeated exposure.

Risk assessment has been done with the new content of active substance.

The risk assessment for the environment has been performed for the intended uses indoors, outdoors around buildings, outdoors open areas and waste dumps since the concentration of the active substance has been reduced. The new evaluation shows that the conclusions for the first evaluation remain valid.

Therefore, IKEBANA CONSUMER BRODIFACOUM CEREAL can be authorised as a rodenticide product against house mice (*Mus musculus*) and brown rats (*Rattus norvegicus*). It is to be used indoors, outdoors around buildings and outdoor in open areas and waste dumps. The users can be general public, professional and trained professional. It is a ready to used bait to be used in tamper-resistant bait stations.

The specific intended uses of the product are in section 2.4. of this assessment report.

Please, note that this assessment report includes all the uses requested by the applicant and assessed by ES CA, only as information for the concerned Member States.

Spanish CA only grants the use of IKEBANA CONSUMER BRODIFACOUM CEREAL according to the table 5 included in this assessment report due to our national risk mitigation measures.

2. Summary of the product assessment

2.1 Administrative information

2.1.1 Identifier in R4BP

<p>IKEBANA CONSUMER BRODIFACOUM CEREAL</p> <p><u>Additional names:</u> QM CONSUMER BRODIFACOUM CEREAL, BDF CONSUMER BRODIFACOUM CEREAL, DIPTRON CONSUMER BRODIFACOUM CEREAL.</p>
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2.1.2 Manufacturer(s) of the product

Name of manufacturer	QUIMICA DE MUNGUÍA, S.A.
Address of manufacturer	Derio Bidea 51 48100 – Munguía Spain
Location of manufacturing sites	Derio Bidea 51 48100 – Munguía Spain

2.1.3 Manufacturer(s) of the active substance(s)

Active substance	BRODIFACOUM
Name of manufacturer	ACTIVA S.r.l. / Dr. TEZZA S.r.l.
Address of manufacturer	ACTIVA S.r.l. Via Feltre, 32 20132 – Milano Italy
Location of manufacturing sites	Dr. TEZZA S.r.l. Via Tre Ponti, 22 37050 – S. Maria di Zevio (VR) Italy

2.2 Composition and formulation

2.2.1 Qualitative and quantitative information on the composition

Table 1

Common name	IUPAC name	Function	CAS number	EC number	Content (%)
Brodifacoum	3-[3-(4'-bromobiphenyl-4-yl)-1,2,3,4-tetrahydro-1-naphthyl]-4-hydroxycoumarin	Active substance	56073-10-0	259-980-5	0.0029
-	-	Non active substances	-	-	-

- The product contains a bittering agent and a dye.
 - Information on the full composition is provided in the confidential annex (see chapter **¡Error! No se encuentra el origen de la referencia.**).
- According to the information provided the product contains no nanomaterial as defined in Article 3 paragraph 1 (z) of Regulation No. 528/2012

2.2.2 Information on the substance(s) of concern

No substance of concern was identified upon initial assessment (the application for authorisation was submitted and the assessment took place before the Biocidal Products Regulation 528/2012 entered into force).

2.2.3 Candidate(s) for substitution

No candidate for substitution was identified upon initial assessment (the application for authorisation was submitted and the assessment took place before the Biocidal Products Regulation 528/2012 entered into force).

Now that the Biocidal Products Regulation 528/2012 entered into force, the following substance(s) was/were identified as candidate(s) for substitution upon this renewal:

Brodifacoum does meet the exclusion criteria according to Article 5(1) BPR. Because the following exclusion criteria are met:

- toxic for reproduction category 1A
- persistent and very persistent, bioaccumulative and toxic

And therefore, Brodifacoum does meet the conditions laid down in Article 10 BPR, and is consequently a candidate for substitution.

2.2.4 Type of formulation


Ready-to-use bait: grain

2.3 Classification and Labelling according to the Regulation (EC) No 1272/2008

Table 2

Classification	
Hazard classes, Hazard categories	Hazard statements
Specific target organ toxicity after repeated exposure. Category 2	H373 May cause damage to organs (blood) through prolonged or repeated exposure

Table 3

Labelling		
	Code	Pictogram / Wording
Pictograms	GHS08	
Signal word		WARNING
Hazard statements	H373	May cause damage to organs (blood) through prolonged or repeated exposure
Supplemental hazard information	-	
Supplemental label elements	-	
Precautionary statements	P102	Keep out of reach of children
	P103	Read label before use.
	P260	Do not breathe dust/fume/ gas/mist/vapours/spray
	P280	Wear protective gloves
	P314	Get medical advice/attention if you feel unwell
	P501	Dispose of contents and/ or container as a hazardous waste to a registered establishment or undertaking, in accordance with current regulations
Note	-	

2.4 Use(s) appropriate for further authorisation

In order to make proper use of the standard sentences for SPCs for rodenticides it is considered necessary to split the uses currently evaluated in Spain further down:

Table 4

Use(s) considered appropriate for authorisation after former assessment (uses currently evaluated in SPAIN)		Use(s) appropriate for further authorisation	
1	House mice and/or Brown rats – general public – indoor, outdoor around building, outdoor open areas & waste dumps	1	House mice and Brown rats – general public - indoor
		2	Brown Rats – general public – outdoor around buildings
2	House mice and/or Brown rats – Professionals– indoor, outdoor around building, outdoor open areas & waste dumps	3	House mice – professionals - indoor
		4	Brown Rats – professionals - indoor
		5	House mice and/or Brown rats – Professionals – outdoor around buildings
3	House mice and/or brown rats – trained professionals – indoor, outdoor around building, outdoor open areas & waste dumps	6	House mice and/or Brown rats – trained professionals - indoor
		7	House mice and/or Brown rats – trained professionals – outdoor around buildings
		8	Brown Rats – trained professionals – outdoor open areas & waste dumps

Uses authorised in Spain according national Risk Mitigation Measures

Table 5

Use(s) considered appropriate for authorisation after former assessment (uses currently under authorisation in Spain)	Use(s) appropriate for authorisation in Spain according national Risk Mitigation Measures.
-	House mice and Brown rats – general public - indoor
	Brown Rats – general public – outdoor around buildings
-	House mice – professionals - indoor
	Brown Rats – professionals - indoor
	Brown Rats – Professionals – outdoor around buildings
House mice and/or brown rats – trained professionals – indoor	House mice and/or Brown rats – trained professionals - indoor
	Brown rats – trained professionals – outdoor around buildings

2.4.1 Use 1– House mice and Brown rats– general public – indoor

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Mus musculus</i> (house mice) <i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Indoor
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations
Application rate(s) and frequency	Mice: bait boxes with 60g of product each 5-10m 60g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10m (5m in case of strong infestation and 10m in case of weak infestation). Rats: bait boxes with 100g of product each 5-10m 100g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10 meters (5m in case of strong infestation and 10m in case of weak infestation).
Category(ies) of users	General public
Pack sizes and packaging material	Maximum pack size of 150g. Number of packed bags per packaging: up to 150g Grams/kg of bait per packed bag: individual sachets from 10 to 100g. Packaging material: Bags, Sacks, Buckets, Tubes, Bottles and Sachets. Material: Carton or PE or PP or PET or LDPE or PET/PET MET/PE or PET/ALU/PE or PET/PE or PA/ PE or HDPE or PVC

2.4.1.1 Use-specific instructions for use

The bait stations should be visited [for mice - at least every 2 to 3 days at] [for rats - only 5 to 7 days after] the beginning of the treatment and at least weekly afterwards, in order to check whether the bait is accepted, the bait stations are intact and to remove rodent bodies. Re-fill bait when necessary.

2.4.1.2 Use-specific risk mitigation measures

- See section 2.5.2

2.4.1.3 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 2.5.3

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

- See section 2.5.4

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

- See section 2.5.5

2.4.2. Use 2 - Brown Rats – general public – Outdoor around building

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Outdoor around buildings
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations
Application rate(s) and frequency	Rats: bait boxes with 100g of product each 5-10m 100g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10 meters (5m in case of strong infestation and 10m in case of weak infestation)
Category(ies) of users	General public
Pack sizes and packaging material	Maximum pack size of 150g. Number of packed bags per packaging: up to 150g Grams/kg of bait per packed bag: individual sachets from 10 to 100 g Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton, PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC.

2.4.2.1. Use-specific instructions for use

- Place the bait stations in areas not liable to flooding.
- Replace any bait in a bait station in which bait has been damaged by water or contaminated by dirt.
- The bait stations should be visited only 5 to 7 days after the beginning of the treatment and at least weekly afterwards, in order to check whether the bait is accepted, the bait stations are intact and to remove rodent bodies. Re-fill bait when necessary.

2.4.2.2. Use-specific risk mitigation measures

- See section 2.5.2

2.4.2.3. 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 2.5.3

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

- See section 2.5.4

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

- See section 2.5.5

2.4.3 Use 3- House mice – professionals – indoor

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Mus musculus</i> (house mice)

Field(s) of use	Indoor.
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations, in sachets or as loose grain
Application rate(s) and frequency	Mice: bait boxes with 60g of product each 5-10m 60g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10 meters (5m in case of strong infestation and 10m in case of weak infestation).
Category(ies) of users	Professionals
Pack sizes and packaging material	Minimum pack size of 3 kg. Number of packed bags per packaging: up to 10 kg. Grams/kg of bait per packed bag: individual sachets from 10 g to 60g. Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton, PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC. Furthermore, the product can be supplied as loose grain directly inside the secondary packaging mentioned above.

2.4.3.1 Use-specific instructions for use

- The bait stations should be visited at least every 2 to 3 days at the beginning of the treatment and at least weekly afterwards, in order to check whether the bait is accepted, the bait stations are intact and to remove rodent bodies. Re-fill bait when necessary.
- Follow any additional instructions provided by the relevant code of best practice.

2.4.3.2 Use-specific risk mitigation measures

See section 2.5.2

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

- When placing bait stations close to water drainage systems, ensure that bait contact with water is avoided.

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

See section 2.5.4

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

See section 2.5.5

2.4.5 4. Use 4 – Brown Rats – professionals – indoor

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Indoor.
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations, in sachets or as loose grain
Application rate(s) and frequency	Rat: bait boxes with 100g of product each 5-10m 100g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10 meters (5m in case of strong infestation and 10m in case of weak infestation).
Category(ies) of users	Professionals
Pack sizes and packaging material	Minimum pack size of 3 kg. Number of packed bags per packaging: up to 10 kg. Grams/kg of bait per packed bag: individual nonwoven sachets from 10g to 100g. Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton, PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC. Furthermore, the product can be supplied as loose grain directly inside the secondary packaging mentioned above.

2.4.4.1 Use-specific instructions for use

- The bait stations should be visited only 5 to 7 days after the beginning of the treatment and at least

weekly afterwards, in order to check whether the bait is accepted, the bait stations are intact and to remove rodent bodies. Re-fill bait when necessary.

- Follow any additional instructions provided by the relevant code of best practice.

2.4.4.2 Use-specific risk mitigation measures

See section 2.5.2

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

- When placing bait stations close to water drainage systems, ensure that bait contact with water is avoided.

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

See section 2.5.4

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

See section 2.5.5

2.4.5 Use 5 – House mice and/or brown rats – professionals – outdoor around buildings

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Mus musculus</i> (house mice) <i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Outdoor around buildings
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait station , in sachets or as loose grain

Application rate(s) and frequency	<p>Rats: bait boxes with 100 g of product each 5-10m</p> <p>100g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10 meters (5m in case of strong infestation and 10m in case of weak infestation).</p> <p>Mice: bait boxes with 60g of product each 5-10m.</p> <p>60g of bait per bait station. If more than one bait station is needed, the minimum distance between bait stations should be of 5-10 meters (5m in case of strong infestation and 10m in case of weak infestation).</p>
Category(ies) of users	Professionals
Pack sizes and packaging material	<p>Minimum pack size of 3 kg.</p> <p>Number of packed bags per packaging: up to 10 kg. Grams/kg of bait per packed bag: individual sachets from 10g to 100g. Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton or PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC.</p> <p>Furthermore, the product can be supplied as loose grain directly inside the secondary packaging mentioned above.</p>

2.4.5.1 Use-specific instructions for use

- Protect bait from the atmospheric conditions (e.g. rain, snow, etc.). Place the bait stations in areas not liable to flooding.
- The bait stations should be visited [*for mice* - at least every 2 to 3 days at] [*for rats* - only 5 to 7 days after] the beginning of the treatment and at least weekly afterwards, in order to check whether the bait is accepted, the bait stations are intact and to remove rodent bodies. Re-fill bait when necessary.
- Replace any bait in a bait station in which bait has been damaged by water or contaminated by dirt.
- Follow any additional instructions provided by the relevant code of best practice.

2.4.5.2 Use-specific risk mitigation measures

- Do not apply this product directly in the burrows

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

- When placing bait stations close to surface waters (e.g. rivers, ponds, water channels, dykes, irrigation ditches) or water drainage systems, ensure that bait contact with water is avoided.

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

See section 2.5.4

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

See section 2.5.5

2.4.6 Use 6 House mice and/or brown rats – trained professionals – indoor

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Mus musculus</i> (house mice) <i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Indoor
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations, in sachets or as loose grain
Application rate(s) and frequency	Rats: bait boxes with 100-200 g per baiting point Mice: bait boxes with 60-100 g per baiting point
Category(ies) of users	Trained professionals
Pack sizes and packaging material	Minimum pack size of 3 kg. Number of packed bags per packaging: up to 10 kg. Grams/kg of bait per packed bag: individual sachets from 10g to 200g. Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton or PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC

Furthermore, the product can be supplied as loose grain directly inside the secondary packaging mentioned above.

2.4.6.1 Use-specific instructions for use

- Remove the remaining product at the end of treatment period.
- Follow any additional instructions provided by the relevant code of best practice.

2.4.6.2 Use-specific risk mitigation measures

- Where possible, prior to the treatment inform any possible bystanders (e.g. users of the treated area and their surroundings) about the rodent control campaign
- Consider preventive control measures (e.g. plug holes, remove potential food and drinking as far as possible) to improve product intake and reduce the likelihood of reinvasion.
- To reduce risk of secondary poisoning, search for and remove dead rodents during treatment at frequent intervals, in line with the recommendations provided by the relevant code of best practice.
- Do not use the product as permanent baits for the prevention of rodent infestation or monitoring of rodent activities.
- Do not use the product in pulsed baiting treatments.
- This product shall only be used indoors and in places that are not accessible to children or non-target animals.

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

- When placing bait points close to water drainage systems, ensure that bait contact with water is avoided.

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

- See section 2.5.4.

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

-See section 2.5.5

2.4.7 Use 7 – House mice and/or brown rats – trained professionals – outdoor around buildings

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Mus musculus</i> (house mice) <i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Outdoor around buildings
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations, in sachets or as loose grain
Application rate(s) and frequency	Rats: bait boxes with 100-200 g per baiting point Mice: bait boxes with 60-100 g per baiting point
Category(ies) of users	Trained professionals
Pack sizes and packaging material	Minimum pack size of 3 kg. Number of packed bags per packaging: up to 10 kg. Grams/kg of bait per packed bag: individual sachets from 10g to 200g. Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton or PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC Furthermore, the product can be supplied as loose grain directly inside the secondary packaging mentioned above.

2.4.7.1 Use-specific instructions for use

- Protect bait from the atmospheric conditions. Place the baiting points in areas not liable to flooding.
- Replace any bait in baiting points in which bait has been damaged by water or contaminated by dirt.
- Remove the remaining product at the end of treatment period.
- Follow any additional instructions provided by the relevant code of best practice.

2.4.7.2 Use-specific risk mitigation measures

- Where possible, prior to the treatment inform any possible bystanders (e.g. users of the treated area)

and their surroundings) about the rodent control campaign.

- Consider preventive control measures (plug holes, remove potential food and drinking as far as possible) to improve product intake and reduce the likelihood of reinvasion.
- To reduce risk of secondary poisoning, search for and remove dead rodents during treatment at frequent intervals, in line with the recommendations provided by the relevant code of best practice.
- Do not use this product as permanent baits for the prevention of rodent infestation or monitoring of rodent activities.
- Do not use this product in pulsed baiting treatments.
- Do not apply this product directly in the burrows.

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

- When placing bait points close to surface waters (e.g. rivers, ponds, water channels, dykes, irrigation ditches) or water drainage systems, ensure that bait contact with water is avoided.

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

-See section 2.5.4

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

-See section 2.5.5

2.4.8 Use 8 – Brown Rats – trained professionals – Outdoor open areas & waste dumps

Product Type(s)	14
Where relevant, an exact description of the use	Not relevant for rodenticides
Target organism(s) (including development stage)	<i>Rattus norvegicus</i> (brown rats)
Field(s) of use	Outdoor open areas Outdoor waste dumps
Application method(s)	Ready-to-use bait to be used in tamper-resistant bait stations, in sachets or as loose grain
Application rate(s) and frequency	Rats: bait boxes with 100-200 g per baiting point.

Category(ies) of users	Trained professionals
Pack sizes and packaging material	<p>Minimum pack size of 3 kg.</p> <p>Number of packed bags per packaging: up to 10 kg. Grams/kg of bait per packed bag: individual sachets from 10g to 200g. Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets. Material: Carton or PE or PP or PET or LDPE or PET / PET MET / PE or PET / ALU / PE or PET / PE or PA / PE or HDPE or PVC</p> <p>Furthermore, the product can be supplied as loose grain directly inside the secondary packaging mentioned above.</p>

2.4.8.1 Use-specific instructions for use

- Protect bait from the atmospheric conditions. Place the bait stations in areas not liable to flooding.
- Replace any bait in baiting points in which bait has been damaged by water or contaminated by dirt.
- Remove the remaining product at the end of treatment period
- Follow any additional instructions provided by the relevant code of best practice.

2.4.8.2 Use-specific risk mitigation measures

- Where possible, prior to the treatment inform any possible bystanders (e.g. users of the treated area and their surroundings) about the rodent control campaign
- To reduce risk of secondary poisoning, search for and remove dead rodents during treatment at frequent intervals, in line with the recommendations provided by the relevant code of best practice.
- Do not use this product as permanent baits for the prevention of rodent infestation or monitoring of rodent activities.
- Do not use this product in pulsed baiting treatments.
- Do not apply this product directly in the burrows.

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

- When placing bait points close to surface waters (e.g. rivers, ponds, water channels, dykes, irrigation ditches) or water drainage systems, ensure that bait contact with water is avoided.

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

See section 2.5.4

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

See section 2.5.5

2.5 General directions for use

2.5.1. Instructions for use

General Public:

- Read and follow the product information as well as any information accompanying the product or provided at the point of sale before using it.
- Prior to the use of rodenticide products, non-chemical control methods (e.g. traps) should be considered.
- Remove food which is readily attainable for rodents (e.g. spilled grain or food waste). Apart from this, do not clean up the infested area just before the treatment, as this only disturbs the rodent population and makes bait acceptance more difficult to achieve.
- Bait stations should be placed in the immediate vicinity where rodent activity has been observed (e.g. travel paths, nesting sites, feedlots, holes, burrows etc.).
- Where possible, bait stations must be fixed to the ground or other structures.
- Do not open the sachets containing the bait.
- Place bait stations out of the reach of children, birds, pets, farm animals and other non-target animals.
- Place bait stations away from food, drink and animal feeding stuffs, as well as from utensils or surfaces that have contact with these.
- Do not place bait stations near water drainage systems where they can come into contact with water.
- When using the product do not eat, drink or smoke. Wash hands and directly exposed skin after using the product.
- Remove the remaining bait or the bait stations at the end of the treatment period.

Professionals:

- Read and follow the product information as well as any information accompanying the product or provided at the point of sale before using it.
- Carry out a pre-baiting survey of the infested area and an on-site assessment in order to identify the rodent species, their places of activity and determine the likely cause and the extent of the infestation.
- Remove food which is readily attainable for rodents (e.g. spilled grain or food waste). Apart from this, do not clean up the infested area just before the treatment, as this only disturbs the rodent population and makes bait acceptance more difficult to achieve.
- The product should only be used as part of an integrated pest management (IPM) system, including, amongst others, hygiene measures and, where possible, physical methods of control.
- Consider preventive control measures (e.g. plug holes, remove potential food and drinking as far as possible) to improve product intake and reduce the likelihood of reinvasion.
- Bait stations should be placed in the immediate vicinity of places where rodent activity has been previously observed (e.g. travel paths, nesting sites, feedlots, holes, burrows etc.).
- Where possible, bait stations must be fixed to the ground or other structures.
- Bait stations must be clearly labelled to show they contain rodenticides and that they must not be moved or opened (*see section 2.5.3 for the information to be shown on the label*).
- When the product is being used in public areas, the areas treated should be marked during the treatment period and a notice explaining the risk of primary or secondary poisoning by the anticoagulant as well as indicating the first measures to be taken in case of poisoning must be made available alongside the baits.
- Bait should be secured so that it cannot be dragged away from the bait station.
- Place the product out of the reach of children, birds, pets and farm animals and other non-target animals.
- Place the product away from food, drink and animal feeding stuffs, as well as from utensils or surfaces that have contact with these.
- When using the product do not eat, drink or smoke. Wash hands and directly exposed skin after using the product.
- If bait uptake is low relative to the apparent size of the infestation, consider the replacement of bait stations to further places and the possibility to change to another bait formulation.
- If after a treatment period of 35 days baits are continued to be consumed and no decline in rodent activity can be observed, the likely cause has to be determined. Where other elements have been

excluded, it is likely that there are resistant rodents so consider the use of a non-anticoagulant rodenticide, where available, or a more potent anticoagulant rodenticide. Also consider the use of traps as an alternative control measure.

- Remove the remaining bait or the bait stations at the end of the treatment period.
- Bait in sachets: Do not open the sachets containing the bait.
- Loose grains: Place the bait in the bait station by using a dosage device. Specify the methods to minimise dust (e.g. wet wiping)

Trained professionals:

- Read and follow the product information as well as any information accompanying the product or provided at the point of sale before using it.
- Carry out a pre-baiting survey of the infested area and an on-site assessment in order to identify the rodent species, their places of activity and determine the likely cause and the extent of the infestation.
- Remove food which is readily attainable for rodents (e.g. spilled grain or food waste). Apart from this, do not clean up the infested area just before the treatment, as this only disturbs the rodent population and makes bait acceptance more difficult to achieve.
- The product should only be used as part of an integrated pest management (IPM) system, including, amongst others, hygiene measures and, where possible, physical methods of control.
- The product should be placed in the immediate vicinity of places where rodent activity has been previously explored (e.g. travel paths, nesting sites, feedlots, holes, burrows etc.).
- Where possible, bait stations must be fixed to the ground or other structures.
- Bait stations must be clearly labelled to show they contain rodenticides and that they must not be moved or opened (*see section 2.5.3 for the information to be shown on the label*).
- When the product is being used in public areas, the areas treated should be marked during the treatment period and a notice explaining the risk of primary or secondary poisoning by the anticoagulant as well as indicating the first measures to be taken in case of poisoning must be made available alongside the baits.
- Bait should be secured so that it cannot be dragged away from the bait station.
- Place the product out of the reach of children, birds, pets and farm animals and other non-target animals.
- Place the product away from food, drink and animal feeding stuffs, as well as from utensils or surfaces that have contact with these.

- Wear protective chemical resistant gloves during product handling phase (glove material to be specified by the authorisation holder within the product information).
- When using the product do not eat, drink or smoke. Wash hands and directly exposed skin after using the product.
- The frequency of visits to the treated area should be at the discretion of the operator, in the light of the survey conducted at the outset of the treatment. That frequency should be consistent with the recommendations provided by the relevant code of best practice.
- If bait uptake is low relative to the apparent size of the infestation, consider the replacement of bait points to further places and the possibility to change to another bait formulation.
- If after a treatment period of 35 days baits are continued to be consumed and no decline in rodent activity can be observed, the likely cause has to be determined. Where other elements have been excluded, it is likely that there are resistant rodent so consider the use of a non-anticoagulant rodenticide, where available, or a more potent anticoagulant rodenticide. Also consider the use of traps as an alternative control measure.
- Bait in sachets: Do not open the sachets containing the bait
- Loose grains: Place the bait in the bait station by using a dosage devise. Specify the methods to minimise dust (e.g. wet wiping)

2.5.2 Risk mitigation measures:

General Public:

- Consider preventive control measures (plug holes, remove potential food and drinking as far as possible) to improve product intake and reduce the likelihood of reinvasion.
- Do not use anticoagulant rodenticides as permanent baits (e.g. for prevention of rodent infestation or to detect rodent activity).
- The product information (i.e. label and/or leaflet) shall clearly show that:
the product shall be used in adequate tamper resistant bait stations (e.g. "use in tamper resistant bait stations only").
users shall properly label bait stations with the information referred to in section 5.3 of the SPC (e.g. "label bait stations according to the product recommendations").
- Using this product should eliminate rodents within 35 days. The product information (i.e. label and/or leaflet) shall clearly recommend that in case of suspected lack of efficacy by the end of the treatment (i.e. rodent activity is still observed), the user should seek advice from the product supplier or call a pest

control service.

- Search for and remove dead rodents during treatment, at least as often as bait stations are inspected.
- Dispose dead rodents in accordance with local requirements *[The method of disposal shall be described specifically in the national SPC and be reflected on the product label].*

Professionals:

- Where possible, prior to the treatment inform any possible bystanders (e.g. users of the treated area and their surroundings) about the rodent control campaign
- To reduce risk of secondary poisoning, search for and remove dead rodents at frequent intervals during treatment (e.g. at least twice a week).
- Products shall not be used beyond 35 days without an evaluation of the state of the infestation and of the efficacy of the treatment.
- Do not use baits containing anticoagulant active substances as permanent baits for the prevention of rodent infestation or monitoring of rodent activities.
- The product information (i.e. label and/or leaflet) shall clearly show that:
the product shall not be supplied to the general public (e.g. "for professionals only").
the product shall be used in adequate tamper resistant bait stations (e.g. "use in tamper resistant bait stations only").
users shall properly label bait stations with the information referred to in section 2.5.3 of the SPC (e.g. label bait stations according to the product recommendations")
- Using this product should eliminate rodents within 35 days. The product information (i.e. label and/or leaflet) shall clearly recommend that in case of suspected lack of efficacy by the end of the treatment (i.e. rodent activity is still observed), the user should seek advice from the product supplier or call a pest control service
- Do not wash the bait stations with water between applications.
- Dispose dead rodents in accordance with local requirements *[The method of disposal shall be described specifically in the national SPC and be reflected on the product label].*

Trained Professionals:

- Where possible, prior to the treatment inform any possible bystanders about the rodent control campaign

- The product information (i.e. label and/or leaflet) shall clearly show that the product shall only be supplied to trained professional users holding certification demonstrating compliance with the applicable training requirements (e.g. "for trained professionals only").
- Do not use in areas where resistance to the active substance can be suspected.
- Products shall not be used beyond 35 days without an evaluation of the state of the infestation and of the efficacy of the treatment.
- Do not rotate the use of different anticoagulants with comparable or weaker potency for resistance management purposes. For rotational use, consider using a non-anticoagulant rodenticide, if available, or a more potent anticoagulant.
- Do not wash the bait stations or utensils used in covered and protected bait points with water between applications.
- Dispose dead rodents in accordance with local requirements [*The method of disposal shall be described specifically in the national SPC and be reflected on the product label*].

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

- This product contains an anticoagulant substance. If ingested, symptoms, which may be delayed, may include nosebleed and bleeding gums. In severe cases, there may be bruising and blood present in the faeces or urine.
- Antidote: Vitamin K1 administered by medical/veterinary personnel only.
- In case of:
 - Dermal exposure, wash skin with water and then with water and soap.
 - Eye exposure, always check for and remove contact lenses, rinse eyes with eyes-rinse liquid or water, keep eyes lids open at least 10 minutes.
 - Oral exposure, rinse mouth carefully with water. Never give anything by mouth to unconscious person. Do not provoke vomiting. If swallowed, seek medical advice immediately and show the product's container or label [insert country specific information]. Contact a veterinary surgeon in case of ingestion by a pet [insert country specific information].
- Bait stations must be labelled with the following information: "do not move or open"; "contains a rodenticide"; "product name or authorisation number"; "active substance(s)" and "in case of incident, call a poison centre [insert national phone number]".
- Hazardous to wildlife.

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

- At the end of the treatment, dispose uneaten bait and the packaging in accordance with local requirements [The method of disposal shall be described specifically in the national SPC and be reflected on the product label]. Use of gloves is recommended.

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

- Store in a dry, cool and well ventilated place. Keep the container closed and away from direct sunlight.
- Store in places prevented from the access of children, birds, pets and farm animals.
- Shelf life: two years

2.5.6. Other information

- Because of their delayed mode of action, anticoagulant rodenticides take from 4 to 10 days to be effective after consumption of the bait.
- Rodents can be disease carriers. Do not touch dead rodents with bare hands, use gloves or use tools such as tongs when disposing them.
- This product contains a bittering agent and a dye.

Post-authorisation requirements:

- Long term stability test within 2 years

3. Assessment of the product

3.1 Use(s) considered appropriate for authorisation after former assessment (uses evaluated in SPAIN)

3.1.1 Use 1 – House mice and/or Brown rats – general public – indoor, outdoor around building, outdoor open areas & waste dumps

Product Type(s)	14
Where relevant, an exact description of the use	Rodenticide
Target organism(s) (including development stage)	The product is authorised only for use against rats (<i>Rattus norvegicus</i>) and mice (<i>Mus musculus</i>).
Field(s) of use	Indoor, outdoor around building, outdoor open areas & waste dumps
Application method(s)	The biocidal product is ready to use grain bait (in sachets or loose) containing Brodifacoum (0.005%).
Application rate(s) and frequency	For rats, each bait point usually contains up to 100g of bait and it should be placed in 10 m ² depending on the level of infestation. For mice each bait point usually contains up to 50g of bait and it should be placed 10 m ² depending on the level of infestation.
Category(ies) of users	General public
Pack sizes and packaging material	- Loose grain: plastic bag or sachet (PE, PP or LDPE), kraft plastic bucket (HDPE) and cardboard box, of 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5 kg, 3kg, 5kg, 10kg, 15kg 20kg and 25kg, without any other kind of packaging. Additionally, plastic bag or sachet (PE, PP or LDPE) of 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg, in four different kinds of packaging: <u>Cardboard box</u> Description: Self-assembly cardboard box with flap and seal or glued flaps Material: Cardboard <u>Plastic bucket</u> Description: Rectangular or conical bucket sealed Material: HDPE <u>Kraft sacks</u> Description: Kraft paper sack with internal Polyethylene bag

	<p>Material: Kraft paper and Polyethylene</p> <p>- <u>Grain in sachets</u>: LDPE, PP and PE sachets of 25g, 50g and 100g, in four different kinds of packaging:</p> <p><u>Plastic bag</u> Description: Prefabricated bags or serial production bags, both thermal-welded Material: PE or PP or LDPE Labelling: The principal area label Contents (Net weight): 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg</p> <p><u>Cardboard box</u> Description: Self-assembly cardboard box with flap and seal or glued flaps Material: Cardboard Contents (Net weight): 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg</p> <p><u>Plastic bucket</u> Description: Rectangular or conical bucket sealed Material: HDPE Contents (Net weight): 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5 kg, 3kg, 5 kg, 10kg, 15kg, 20kg and 25kg</p> <p><u>Kraft sacks</u> Description: Kraft paper sack with internal Polyethylene bag Material: Kraft paper and Polyethylene Contents (Net weight): 100g, 150g, 200g, 250g, 300g, 400g y 500 g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg</p>
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3.1.2 Use 2 – House mice and/or Brown rats –Professionals– indoor, outdoor around building, outdoor open areas & waste dumps

Product Type(s)	14
Where relevant, an exact description of the use	Rodenticide
Target organism(s) (including development stage)	The product is authorised only for use against rats (<i>Rattus norvegicus</i>) and mice (<i>Mus musculus</i>).
Field(s) of use	Indoor, outdoor around building, outdoor open areas & waste dumps
Application method(s)	The biocidal product is ready to use grain bait (in sachets or loose) containing Brodifacoum (0.005%).
Application rate(s) and frequency	For rats, each bait point usually contains up to 100g of bait and it should be placed in 10 m ² depending on the level of infestation.

	For mice each bait point usually contains up to 50g of bait and it should be placed 10 m ² depending on the level of infestation.
Category(ies) of users	Professionals
Pack sizes and packaging material	<p>- Loose grain: plastic bag or sachet (PE, PP or LDPE), kraft plastic bucket (HDPE) and cardboard box, of 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5 kg, 3kg, 5kg, 10kg, 15kg 20kg and 25kg, without any other kind of packaging.</p> <p>Additionally, plastic bag or sachet (PE, PP or LDPE) of 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg, in four different kinds of packaging:</p> <p><u>Cardboard box</u> Description: Self-assembly cardboard box with flap and seal or glued flaps Material: Cardboard</p> <p><u>Plastic bucket</u> Description: Rectangular or conical bucket sealed Material: HDPE</p> <p><u>Kraft sacks</u> Description: Kraft paper sack with internal Polyethylene bag Material: Kraft paper and Polyethylene</p> <p>- Grain in sachets: LDPE, PP and PE sachets of 25g, 50g and 100g, in four different kinds of packaging:</p> <p><u>Plastic bag</u> Description: Prefabricated bags or serial production bags, both thermal-welded Material: PE or PP or LDPE Contents (Net weight)100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg 20kg and 25kg</p> <p><u>Cardboard box</u> Description: Self-assembly cardboard box with flap and seal or glued flaps Material: Cardboard Contents (Net weight)100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg</p> <p><u>Plastic bucket</u> Description: Rectangular or conical bucket sealed Material: HDPE Contents (Net weight)100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5 kg, 3kg, 5 kg,10kg, 15kg, 20kg and 25kg</p> <p><u>Kraft sacks</u> Description: Kraft paper sack with internal Polyethylene bag Material: Kraft paper and Polyethylene Contents (Net weight)100g, 150g, 200g, 250g, 300g, 400g y 500 g,</p>

	1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg
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3.1.3 Use 3 – House mice and/or brown rats – trained professionals – indoor, outdoor around building, outdoor open areas & waste dumps

Product Type(s)	14
Where relevant, an exact description of the use	Rodenticide
Target organism(s) (including development stage)	The product is authorised only for use against rats (<i>Rattus norvegicus</i>) and mice (<i>Mus musculus</i>).
Field(s) of use	Indoor, outdoor around building, outdoor open areas & waste dumps
Application method(s)	The biocidal product is ready to use grain bait (in sachets or loose) containing Brodifacoum (0.005%).
Application rate(s) and frequency	For rats, each bait point usually contains up to 100g of bait and it should be placed in 10 m ² depending on the level of infestation. For mice each bait point usually contains up to 50g of bait and it should be placed 10 m ² depending on the level of infestation.
Category(ies) of users	Trained professionals
Pack sizes and packaging material	<p>-Loose grain: plastic bag or sachet (PE, PP or LDPE), kraft plastic bucket (HDPE) and cardboard box, of 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5 kg, 3kg, 5kg, 10kg, 15kg 20kg and 25kg, without any other kind of packaging.</p> <p>Additionally, plastic bag or sachet (PE, PP or LDPE) of 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg, in four different kinds of packaging:</p> <p><u>Cardboard box</u> Description: Self-assembly cardboard box with flap and seal or glued flaps Material: Cardboard</p> <p><u>Plastic bucket</u> Description: Rectangular or conical bucket sealed Material: High Density Polyethylene (HDPE)</p> <p><u>Kraft sacks</u> Description: Kraft paper sack with internal Polyethylene bag Material: Kraft paper and Polyethylene</p> <p>- Graininsachets: LDPE, PP and PE sachets of 25g, 50g and 100g, in four different kinds of packaging:</p> <p><u>Plastic bag</u> Description: Prefabricated bags or serial production bags, both thermal-welded</p>

	<p>Material: Polyethylene or Polypropylene or LDPE Contents (Net weight): 100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg 20kg and 25kg</p> <p><u>Cardboard box</u> Description: Self-assembly cardboard box with flap and seal or glued flaps Material: Cardboard Contents (Net weight)100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg</p> <p><u>Plastic bucket</u> Description: Rectangular or conical bucket sealed Material: High Density Polyethylene (HDPE) Contents (Net weight)100g, 150g, 200g, 250g, 300g, 400g, 500g, 1kg, 2kg, 2.5 kg, 3kg, 5 kg, 10kg, 15kg, 20kg and 25kg</p> <p><u>Kraft sacks</u> Description: Kraft paper sack with internal Polyethylene bag Material: Kraft paper and Polyethylene Contents (Net weight): 100g, 150g, 200g, 250g, 300g, 400g y 500 g, 1kg, 2kg, 2.5kg, 3kg, 5kg, 10kg, 15kg, 20kg and 25kg</p>
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3.2 Physical, chemical and technical properties

Accordingly, the conclusion from the former assessment regarding those physical, chemical and technical properties not provided remains valid.

Nevertheless, the renewal is conditioned to the presentation of the long term stability test; therefore, a post-authorisation condition should be showed in the authorisation certificate.

3.3 Physical hazards and respective characteristics

Neither new data was not provided nor had new guidance to be taken into account for re-assessment.

Accordingly, the conclusion from the former assessment regarding physical hazards and respective characteristics remains valid.

3.4 Methods for detection and identification

Neither new data was not provided nor had new guidance to be taken into account for re-assessment.

Accordingly, the conclusion from the former assessment regarding methods for detection and identification remains valid.

3.5 Efficacy against target organisms

IKEBANA BRODIFACOUM CEREAL is renewed with a decrease of the active substance concentration from 50 ppm to 29 ppm (major change) and a biocidal product name change (previously IKEBANA BRODIFACOUM CEREAL) and is used against Brown rat (*Rattus norvegicus*) and House mouse (*Mus musculus*).

This product is identical to AGRORAT BRODI-3. A letter of access has been submitted in order to use the information/data.

In conclusion, according to the test provided, ES CA consider that the biocidal product with 0.0029% w/w brodifacoum is effective against rats and mice, indoor and outdoor.

3.6 Risk assessment for human health

3.6.1 Assessment of effects of the active substance on human health

New data was not provided nor had new guidance to be taken into account for re-assessment.

Accordingly, the conclusion from the former assessment regarding effects of the active substance on human health remains valid.

3.6.2 Assessment of effects of the product on human health

New data was not provided nor had new guidance to be taken into account for re-assessment.

Accordingly, the conclusion from the former assessment regarding effects of the product on human health remains valid.

3.6.3 Exposure assessment

Regarding human exposure no studies have been submitted; therefore, the exposure assessment has been performed using the paper "HEEG opinion on a harmonised approach for the assessment of rodenticides (anticoagulants)" agreed at TMII 2011. This paper was based on an operator exposure study conducted by CEFIC/EBPF Rodenticides Data Development Group (Chambers *et al.* (2004)) and the number of manipulations agreed at TMII 2010.

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	Primary (direct) exposure	Secondary (indirect) exposure

path	Trained professional use	Professional use	General public (Non-professional use)	Trained professional use	Professional use	General public
Inhalation	No	No	No	No	No	No
Dermal	Yes	Yes	Yes	Yes	Yes	Yes
Oral	n.a.	n.a.	n.a.	No	No	Yes

List of scenarios

Summary table: scenarios			
Scenario number	Scenario	Primary or secondary exposure Description of scenario	Exposed group
1.	Application (refillable bait stations)	Primary exposure during the loading and placing bait boxes. As the previous scenario, this is taken from HEEG Opinion 12 and following this HEEG Opinion, grain bait from a 10 L bucket is placed using a plastic scoop. Only potential dermal exposure is foreseeable, while inhalation exposure is assessed as negligible.	Trained professional, professional and general public (non-professionals)
2.	Post-application (Cleaning) (refillable and sealed bait stations)	Primary exposure during cleaning of bait boxes. The operator emptied a loaded bait station containing with grain bait into a 10 L bucket. Only potential dermal exposure is foreseeable, while inhalation exposure is assessed as negligible.	Trained professional, Professional and general public (non-professionals)
3.	Touching unprotected bait	Secondary exposure: accidentally touched of unprotected bait. Adults or children may be present following application and may be incidentally exposed by touching unprotected bait. For products applied in bait stations or outdoors, incidental exposure will be very limited.	Bystanders (children, infants and adults)

Professional exposure

Trained professionals (Pest Control Operators)

Scenario [1] – Application (Loading and placing bait boxes)

Description of Scenario [1] - Trained professional user		
In this scenario the operator may be in contact with the bait when the bait is loaded and placed. Trained professional operator is bounded to use PPE during the development of the different tasks of his work. Inhalation exposure is considered as negligible during this scenario. Total systemic exposure has been assessed with (Tier 2) and without PPE (Tier 1).		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%
	Operator body weight:	60 kg
	Indicative dermal exposure:	2.04 mg bp per 3kg bait (for >4 decanting operations)
	Number of manipulations during loading	63
Tier 2	PPE (gloves)	10%

Calculations for Scenario [1]

Summary table: estimated exposure from trained professional user					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [1]	Tier 1 / No PPE	-	1.863×10^{-6} mg/kg bw/day		1.863×10^{-6} mg/kg bw/day
Scenario [1]	Tier 2 / PPE (gloves)	-	1.863×10^{-7} mg/kg bw/day	-	1.863×10^{-7} mg/kg bw/day

Scenario [2] – Post application (cleaning of bait boxes)

Description of Scenario [2] - Trained professional user		
During the process of cleaning of bait boxes, the trained operator may be in contact with the bait by handling. Trained professional users are assumed to use PPE during the development of the different tasks of his work. The total systemic exposure has been assessed with (Tier 2) and without PPE (Tier 1).		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%
	Operator body weight:	60 kg

	Indicative dermal exposure:	3.79 mg bp/manipulation (for >4 manipulations)
	Number of manipulations during cleaning	16
Tier 2	PPE (gloves)	10%

Calculations for Scenario [2]

Summary table: estimated exposure from trained professional user					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [2]	Tier 1 / No PPE	-	8.793×10^{-7} mg/kg bw/day	-	8.793×10^{-7} mg/kg bw/day
Scenario [2]	Tier 2 / PPE (gloves)	-	8.793×10^{-8} mg/kg bw/day	-	8.793×10^{-8} mg/kg bw/day

Combined scenarios for trained professional users

Summary table: combined systemic exposure from trained professional uses			
Scenarios combined	Estimated dermal uptake [mg/kg bw/day]	Estimated oral uptake [mg/kg bw/day]	Estimated total uptake [mg/kg bw/day]
Scenarios [1 + 2] / Tier 1	8.793×10^{-7}	-	8.793×10^{-7} mg/kg bw/day
Scenarios [1 + 2] / Tier 2	8.793×10^{-8}	-	8.793×10^{-8} mg/kg bw/day

Professionals user

Scenario [1] – Application (Loading and placing bait boxes)

Description of Scenario [1] – Professional user		
In this scenario the professional user may be in contact with the bait when the bait is loaded and placed*. As was commented in the scenario before, professional users are not assumed to wear protective gloves when handling the products, but this may be required by the instructions for use on the label.		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%

	Operator body weight:	60 kg
	Indicative dermal exposure:	2.04 mg bp per 3kg bait (for >4 decanting operations)
	Exposure scenario	5 applications per day and max. 200 g per bait point (5 x 200 g = 1Kg)

Calculations for Scenario [1]

Summary table: estimated exposure from non-trained professional user					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [1]	Tier 1 / No PPE	-	1.4790×10^{-7} mg/kg bw/day		1.4970×10^{-7} mg/kg bw/day

Scenario [2] – Post application (cleaning of bait boxes)

Description of Scenario [2] – Professional users		
During the process of cleaning of bait boxes, the professional user may be in contact with the bait by handling. Professional users (non-trained) are not assumed to wear protective gloves when handling the products, but this may be required by the instructions for use on the label.		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%
	Operator body weight:	60 kg
	Indicative dermal exposure:	3.79 mg bp/manipulation (for >4 manipulations)
	Exposure scenario	5 cleanings per day and max. 200 g per bait point (5 x 200 g = 1Kg)

Calculations for Scenario [2]

Summary table: estimated exposure from professional user					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [2]	Tier 1 / No PPE	-	2.75×10^{-7} mg/kg bw/day		2.75×10^{-7} mg/kg bw/day

Combined scenarios for professional users

Summary table: combined systemic exposure from professional uses			
Scenarios combined	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenarios [1 + 2] / Tier 1	4.22×10^{-7} mg/kg bw/day	-	4.22×10^{-7} mg/kg bw/day

General public (non-professional exposure)Scenario [1] – Application (Loading and placing bait boxes)

Description of Scenario [1] – General public (Non-professional) users		
In this scenario the non-professional user may be in contact with the bait when the bait is loaded and placed*. As was commented in the scenario before, professional users are not assumed to wear protective gloves when handling the products, but this may be required by the instructions for use on the label.		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%
	Operator body weight:	60 kg
	Indicative dermal exposure:	2.04 mg bp per 3kg bait (for >4 decanting operations)
	Exposure scenario	5 applications per day and max. 200 g per bait point (5 x 200 g = 1Kg)

Calculations for Scenario [1]

Summary table: estimated exposure from general public (non- professional) users					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [1]	Tier 1 / No PPE	-	1.4790×10^{-7} mg/kg bw/day		1.4790×10^{-7} mg/kg bw/day

Scenario [2] – Post application (cleaning of bait boxes)

Description of Scenario [2] – general public (Non-professional) users		
During the process of cleaning of bait boxes, the non-professional user may be in contact with the bait by handling. Professional users (non-trained) are not assumed to wear protective gloves when handling the products, but this may be required by the instructions for use on the label.		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%
	Operator body weight:	60 kg
	Indicative dermal exposure:	3.79 mg bp/manipulation (for >4 manipulations)
	Exposure scenario	5 cleanings per day and max. 200 g per bait point (5 x 200 g = 1Kg)

Calculations for Scenario [2]

Summary table: estimated exposure from professional uses					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [2]	Tier 1 / No PPE	-	2.75×10^{-7} mg/kg bw/day		2.75×10^{-7} mg/kg bw/day

Combined scenarios for non-trained professional users

Summary table: combined systemic exposure from professional uses				
Scenarios combined	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenarios [1+2] / Tier 1	-	4.22×10^{-7} mg/kg bw/day	-	4.22×10^{-7} mg/kg bw/day

Exposure of the general public (indirect exposure)Scenario [3]

Adults or children/infants may be present following application and may be incidentally exposed by touching unprotected bait. For products applied in bait stations or outdoors, incidental exposure will be very limited.

Description of Scenario [3]

Where appropriate, exposure assessments are based on default values in EU Guidance documents. These defaults are used for all Brodifacoum products. However, the default value when handling dead rodents is considered unrealistic and is not presented.

For oral exposure of infants/children two sub-scenarios are made:

(3.a.) one for toddler with 5 grams (TNsG on Human Exposure to Biocidal Products, User Guidance).

and

(3.b.) one for toddler with 10 mg bait (default value for bait treated with repellent)

Users should clean-up unused or part-consumed products. Bait stations protect the product and should prevent access by infants (worse-case).

	Parameters	Value
Tier 1	Infants Body weight	10 kg
	A.S. content of BP	0.0029%
	3.a. - Quantity ingested (g)	5
	3.b. – Quantity ingested (g)	0.01

Calculations for Scenario [3]

Summary table: systemic exposure from general public					
Exposure scenario	Tier/PPE	Estimated inhalation uptake	Estimated dermal uptake	Estimated oral uptake	Estimated total uptake
Scenario [3.a.]	Tier 1 / No PPE	-	-	1.45×10^{-2} mg/kg bw/d	1.45×10^{-2} mg/kg bw/d
Scenario [3.b.]		-	-	2.9×10^{-5} mg/kg bw/d	2.9×10^{-5} mg/kg bw/d

Monitoring data

No monitoring studies have been submitted; therefore, the exposure assessment has been performed using the paper “HEEG opinion on a harmonised approach for the assessment of rodenticides (anticoagulants)” agreed at TMII 2011. This paper was based on an operator exposure study conducted by CEFIC/EBPF Rodenticides Data Development Group (Chambers *et al.* (2004)) and the number of manipulations agreed at TMII 2010.

Dietary exposure

Not applicable: non exposure is foreseen because the bait boxes with the product must not be placed where food, feeding stuffs, drinking water and surfaces where food is prepared an become contaminated.

Exposure associated with production, formulation and disposal of the biocidal product

Please see scenario [3] for professional exposure which is related with disposal of the biocidal product.

Aggregated exposure

No aggregated exposure is foreseeable since the product is not intended to be used under another biocidal product type.

Summary of exposure assessment

Scenarios and values to be used in risk assessment			
Scenario number	Exposed group (e.g. professionals, non-professionals, bystanders)	Tier/PPE	Estimated total uptake
1.	Trained professional user	Tier 1/ no PPE	1.863 x 10 ⁻⁶ mg/kg bw/day
1	Trained professional user	Tier 2/ PPE	1.863 x 10 ⁻⁷ mg/kg bw/day
1.	Professional user	Tier 1/ no PPE	1.4970 x 10 ⁻⁷ mg/kg bw/d
1.	General Public (Non-professional)	No PPE	1.4790 x 10 ⁻⁷ mg/kg bw/d
2.	Trained professional user	Tier 1/ no PPE	8.793 x 10 ⁻⁷ mg/kg bw/d
2.	Trained professional user	Tier 2/PPE	8.793 x 10 ⁻⁸ mg/kg bw/day
2.	Professional user	Tier 1/ no PPE	2.75 x 10 ⁻⁷ mg/kg bw/day

Scenarios and values to be used in risk assessment			
Scenario number	Exposed group (e.g. professionals, non-professionals, bystanders)	Tier/PPE	Estimated total uptake
2	General Public (Non-professional)	No PPE	2.75×10^{-7} mg/kg bw/d
3.	General public (Children)	Tier 1 (without efficient bitter agent)	1.45×10^{-2} mg/kg bw/day
3.	General public (Children)	Tier 2 (with bitter agent)	2.9×10^{-5} mg/kg bw/day

3.6.4 Risk characterisation for human health

Reference values to be used in Risk Characterisation

Reference	Study	NOAEL (LOAEL) (mg/kg bw/day)	AF ¹	Correction for oral absorption	Value (mg/kg bw/day)
AEL _{acute}	-	0.001	300	-	3.3×10^{-6}
AEL _{medium-term}	-	0.002	300	-	6.67×10^{-6}
AEL _{long-term}	-	0.001	300	-	3.3×10^{-6}

¹ Assessment factor have been obtained from the Brodifacoum's CAR.

The acceptable level of exposure for single use (AEL_{acute}) is established in the EU Endpoint List as 3.3×10^{-6} mg/kgbw/day, based on the endpoint from the developmental toxicity study in the rat (NOAEL: 0.001 mg/kgbw/day) and a safety factor of 300. This is considered to be a suitable endpoint for **non-professionals** applying rodenticide baits on a single occasion, and for **indirect exposure**.

The acceptable level of exposure for repeated use (AEL_{medium}) is established in the EU Endpoint List as 6.67×10^{-6} mg/kgbw/day, based on the endpoint from the developmental toxicity study in the rabbit (NOAEL: 0.002 mg/kgbw/day) and a safety factor of 300. This is considered to be a suitable endpoint for **professionals** applying rodenticide baits on repeated occasions, for example a professional PCO.

The acceptable level of exposure for long-term use (AEL_{chronic}) is established in the EU Endpoint List as 3.3×10^{-6} mg/kgbw/day, based on the endpoint from the 2-generation reproductive toxicity study in the rat (NOAEL: 0.001 mg/kgbw/day) and a safety factor of 300.

Maximum residue limits or equivalent

Exposure to residues in food is not assessed because no contamination on food or feedingstuff is foreseen.

Risk for professional users

Risk for trained professional users (PCO)

Systemic effects

Task/ Scenario	Tier	Systemic NOAEL mg/kg bw/d	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Application / Scenario [1]	Tier 1	0.002	3.3×10^{-6}	1.86×10^{-6}	56,47	Yes
	Tier 2			1.86×10^{-7}	5.65	Yes
Cleaning / Scenario [2]	Tier 1			8.186×10^{-7}	26.64	Yes
	Tier 2			8.186×10^{-8}	2.66	Yes

Combined scenarios

Scenarios combined	Tier	Systemic NOAEL mg/kg bw/d	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
[1]+[2]	Tier 1	0.002	3.3×10^{-6}	2.74×10^{-6}	83.11	Yes
	Tier 2			2.74×10^{-7}	8.31	Yes

Local effects

There is no need to consider local effects separately.

Conclusion

Exposure for trained professional operators applying 'Brodifacoum 0.0029% w/w grain bait' in and around buildings for control of rats and mice is acceptable even without the use of PPE.

Risk for professional users

Systemic effects

Task/ Scenario	Tier	Systemic NOAEL mg/kg bw/d	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Application / Scenario [1]	Tier 1	0.002	3.3×10^{-6}	1.4790×10^{-7}	4.48	Yes
Cleaning / Scenario [2]	Tier 1			2.75×10^{-7}	8.32	Yes

Combined scenarios

Scenarios combined	Tier	Systemic NOAEL mg/kg bw/d	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
[1]+ [2]	Tier 1	0.002	3.3×10^{-6}	4.23×10^{-7}	12.8	Yes

Local effects

There is no need to consider local effects separately.

Conclusion

Exposure for professional users applying 'Brodifacoum 0.0029% w/w grain bait' for control of rats and mice is considered acceptable with and without the use of PPE.

Risk for general public (non-professional users)**Systemic effects**

Task/ Scenario	Tier	Systemic NOAEL mg/kg bw/d	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Application / Scenario [1]	Tier 1			1.4790×10^{-7}	4.48	Yes
Cleaning / Scenario [2]	Tier 1			2.75×10^{-7}	8.32	Yes

Combined scenarios

Scenarios combined	Tier	Systemic NOAEL mg/kg bw/d	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
[1]+ [2]	Tier 1	0.002	3.3×10^{-6}	4.22×10^{-7}	12.8	Yes

Local effects

There is no need to consider local effects separately.

Conclusion

Exposure for non-trained professional operators applying 'Brodifacoum 0.0029% w/w grain bait' in and around buildings for control of rats and mice was acceptable even without the use of gloves.

Risk for the general public

Adults or children may be present following application and may be incidentally exposed by touching unprotected bait. For products applied in bait stations or outdoors, incidental exposure will be very limited.

Children are potentially the group most at risk as they may play inside or around buildings where baits have been placed. Infants could be exposed orally by chewing bait or touching their mouth with contaminated fingers.

Systemic effects

Task/ Scenario	Tier	Systemic NOAEL mg/kg bw/d	AEL _{acute} mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
Infants may ingest part of the bait / [3.a]	Tier 1- (no PPE)	0.001	3.3×10^{-6}	1.45×10^{-2}	4390000	No
Infants may ingest part of the bait / [3.b]				2.9×10^{-5}	879	No

Local effects

There is no need to consider local effects separately.

Conclusion

These values assume ingestion of poison bait; however 'Brodifacoum 0.0029% w/w grain bait' contains denatonium benzoate, a bittering agent which will reduce the likelihood of ingestion. Since the deterrent is not completely effective in protecting against ingestion in all children, it is important that the product is kept out of the reach of children, and away from other non-target species, including pets and livestock, during storage and use.

The calculated exposure was 879% of AEL based on a default exposure value which assumes that infants will ingest 10 mg of poison bait and 4390000% of AEL when assuming that children will ingest 5 g bait. These values show that infants and children ingesting bait will be at risk. However, 'Brodifacoum 0.0029% w/w grain bait' contains a bittering agent which would prevent ingestion of the baits. Therefore, in practice the margins of safety are expected to be higher than those calculated. It is also important that product labels and good practice advise users to prevent access to bait by children.

Risk for consumers via residues in food

Neither new data was not provided nor had new guidance to be taken into account for re-assessment.

Accordingly, the conclusion from the former assessment regarding risks for consumers via residues in food remain valid.

Risk characterisation from combined exposure to several active substances or substances of concern within a biocidal product

There is no risk derived from a combined exposure because indirect exposure via the environment is considered negligible, the product is not intended to be mixed with other biocidal or non-biocidal products and the product does not contain any other active substance of concern

Summary of risk characterisation

Scenario	Exposed group	Tier/PPE	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
1	Trained professional user	Tier 1	3.3×10^{-6}	1.86×10^{-6}	56.47	yes
1.	Trained professional user	Tier 2	3.3×10^{-6}	1.86×10^{-7}	5.65	Yes
2.	Trained professional user	Tier 1	3.3×10^{-6}	8.186×10^{-7}	26.64	Yes
2.	Trained professional user	Tier 2	3.3×10^{-6}	8.186×10^{-8}	2.66	Yes
1	Professional user	Tier 1	3.3×10^{-6}	1.4790×10^{-7}	4.48	yes
2.	Professional user	Tier 1	3.3×10^{-6}	2.56×10^{-7}	8.32	Yes
1	General public (non- professional)	No PPE	3.3×10^{-6}	1.4790×10^{-7}	4.48	Yes
2.	General public (Non-professional)	No PPE	3.3×10^{-6}	2.56×10^{-7}	8.32	Yes
3.	General public (Children)	Tier 1 (without efficient bitter agent)	3.3×10^{-6}	0.0145	439×10^4	No

Scenario	Exposed group	Tier/PPE	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
3.	General public (Children)	Tier 2 (with bitter agent)	3.3×10^{-6}	2.9×10^{-5}	879	No

3.7 Risk assessment for animal health

Neither new data was not provided nor had new guidance to be taken into account for re-assessment. Accordingly, the conclusion from the former assessment regarding animal health remains valid.

3.8 Risk assessment for the environment

Neither new data was not provided nor had new guidance to be taken into account for re-assessment performed with the new active substance concentration.

3.8.1 Exposure assessment

General information

Assessed PT	PT 14
Assessed scenarios	Scenario 1: in and around buildings application, against brown rat. Scenario 2: waste dumps/landfills, against brown rat. Scenario 3: open areas
ESD(s) used	EUBEES 2 Emission Scenario Document for rodenticides.
Approach	A consumption based approach has been used as a suitable protective measure at the local level.
Distribution in the environment	
Groundwater simulation	No
Confidential Annexes	No
Life cycle steps assessed	
Remarks	It has been only evaluate the use of this product against rats since it is the worst case.

Emission estimation

Scenario [1]: in and around buildings

The worst-case application is for the rat. The scenario is for eradication on a farm. The scenario indicates 2 – 3 applications per year. Bait points for rats are set 5 – 10 m apart. For the purposes of aligning the scenario with human exposure, the scenario assesses exposure from use of 250 g of bait in each of the 10 bait points. The bait points are replenished 5 times in a 21-day programme. There is 1 % direct release of the bait to soil. The scenario presented by the applicant differs from the ESD worst case scenario only regarding the amount of bait in each station, i.e. 200 g instead of 250 g.

ESD worst case:

Input parameters for calculating the local emission			
Input	Value	Unit	Remarks
Scenario: use in bait points, in and around buildings			
Amount of product used at each refill/application	250	g	
Fraction of active substance in Product	2.9×10^{-3}	%	
Area directly exposed to active Substance	0.09	m ²	
Area indirectly exposed to active substance	550	m ²	
Number of emission days per Year	21	days	
Number of application sites	10	-	
Number of refills per site	5	-	
Fraction of active substance released directly to soil	0.01	-	
Depth of exposed soil	10	cm	
Fraction of active substance metabolised	21	%	
Bulk density of soil	1.7×10^3	Kg _{wwt} /m ³	

Applicant's worst case:

Input parameters for calculating the local emission			
Input	Value	Unit	Remarks
Scenario: use in bait points, in and around buildings			
Amount of product used at each refill/application	200	g	

Input parameters for calculating the local emission			
Input	Value	Unit	Remarks
Fraction of active substance in Product	2.9×10^{-3}	%	
Area directly exposed to active Substance	0.09	m ²	
Area indirectly exposed to active substance	550	m ²	
Number of emission days per Year	21	days	
Number of application sites	10	-	
Number of refills per site	5	-	
Fraction of active substance released directly to soil	0.01	-	
Depth of exposed soil	10	cm	
Fraction of active substance metabolised	21	%	
Bulk density of soil	1.7×10^3	Kg _{wwt} /m ³	

Calculations for Scenario [1]

Calculations have been performed according to EUBEES, Emission document for biocides used as rodenticides

Direct release in the realistic worst case farm scenario based on bait in bait boxes has been calculated as following (equation 2 ESD):

ESD worst case

Parameter	Definition	Units	Value
Amount of product used at each refill/application	Q _{prod}	g	250
Fraction of active substance in product	F _{C_{prod}}	-	0,000029
Number of application sites	N _{sites}	-	10
Number of refills per site	N _{refil}	-	5
Fraction of active substance released directly to soil	F _{release, soil}	-	0,01

Local direct emission rate of active substance to soil from a campaign	$E_{\text{local soil-campaign}} = (Q_{\text{prod}} \times F_{\text{Cprod}} \times N_{\text{sites}} \times F_{\text{release, soil}})$ (2)	g	0.0036
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Applicant's worst case

Parameter	Definition	Units	Value
Amount of product used at each refill/application	Q_{prod}	g	200
Fraction of active substance in product	F_{Cprod}	-	0,000029
Number of application sites	N_{sites}	-	10
Number of refills per site	N_{refil}	-	5
Fraction of active substance released directly to soil	$F_{\text{release, soil}}$	-	0,01
Local direct emission rate of active substance to soil from a campaign	$E_{\text{local soil-campaign}} = (Q_{\text{prod}} \times F_{\text{Cprod}} \times N_{\text{sites}} \times F_{\text{release, soil}})$ (2)	g	0,0029

The concentration in the soil around each bait box after direct release can be estimated by the equation (3) of the ESD for PT14:

ESD worst case

Parameter	Definition	Units	Value
Local direct emission rate of active substance to soil from a campaign	$E_{\text{soil, D-campaign}}$ (2)	g	0.0036
Area directly exposed to active substance	$AREA_{\text{exposed-D}}$	m ²	0.09
Depth of exposed soil	$DEPTH_{\text{SOIL}}$	m	0.1
Number of application sites	N_{sites}	-	10
Density of exposed soil	RHO_{soil}	kg/m ³	1700
Local concentration in soil due to direct release after a campaign [mg/kg]	$C_{\text{local soil-D}} = (E_{\text{local soil-D-campaign}} \times 10E3) / (AREA_{\text{exposed-D}} \times DEPTH_{\text{soil}} \times RHO_{\text{soil}} \times N_{\text{sites}})$ (3)	mg/kg	0.024

Applicant's worst case

Parameter	Definition	Units	Value
Local direct emission rate of active substance to soil from a campaign	$E_{\text{soil, D-campaign}}$ (2)	g	0.0029

Area directly exposed to active substance	$AREA_{\text{exposed-D}}$	m^2	0.09
Depth of exposed soil	$DEPTH_{\text{SOIL}}$	m	0.1
Number of application sites	N_{sites}	-	10
Density of exposed soil	RHO_{soil}	kg/m^3	1700
Local concentration in soil due to direct release after a campaign [mg/kg]	$C_{\text{local}}_{\text{soil-D}} = (E_{\text{local}}_{\text{soil-D-campaign}} \times 10E3) / (AREA_{\text{exposed-D}} \times DEPTH_{\text{soil}} \times RHO_{\text{soil}} \times N_{\text{sites}}) (3)$	mg/kg	0.019

The concentration in the soil around the bait box taking into account only disperse release can be estimated by the equation:

ESD worst case

Parameter	Definition	Units	Value
Amount of product used at each refill/application	Q_{prod}	g	250
Fraction of active substance in product	$F_{C_{\text{prod}}}$	-	0.000029
Number of application sites	N_{sites}	-	10
Number of refills per site	N_{refil}	-	5
Fraction released indirectly to soil	$F_{\text{release-ID, soil}}$		0.9
Fraction released directly to soil	$F_{\text{release, soil}}$		0.01
Area indirectly exposed to rodenticide	$AREA_{\text{exposed-ID}}$	m^2	550
Depth of exposed soil	$DEPTH_{\text{SOIL}}$	m	0.1
Density of exposed soil	RHO_{soil}	kg/m^3	1700
Concentration in soil due to indirect (disperse) release after a campaign	$C_{\text{local}}_{\text{soil-ID}} = ((Q_{\text{prod}} \times F_{C_{\text{prod}}} \times N_{\text{sites}} \times N_{\text{refil}} \times 10^3 \times F_{\text{release-ID soil}} \times (1 - F_{\text{release,D soil}})) / (AREA_{\text{exposed-ID}} \times DEPTH_{\text{soil}} \times RHO_{\text{soil}} \times N_{\text{sites}}) (4)$	mg/kg	0.00345

Applicant's worst case

Parameter	Definition	Units	Value
Amount of product used at each refill/application	Q_{prod}	g	200
Fraction of active substance in product	$F_{C_{\text{prod}}}$	-	0.000029

Parameter	Definition	Units	Value
Number of application sites	N_{sites}	-	10
Number of refills per site	N_{refil}	-	5
Fraction released indirectly to soil	$F_{\text{release-ID, soil}}$		0.9
Fraction released directly to soil	$F_{\text{release, soil}}$		0.01
Area indirectly exposed to rodenticide	$AREA_{\text{exposed-ID}}$	m^2	550
Depth of exposed soil	$DEPTH_{\text{SOIL}}$	m	0.1
Density of exposed soil	RHO_{soil}	kg/m^3	1700
Concentration in soil due to indirect (disperse) release after a campaign	$C_{\text{local soil-ID}} = ((Q_{\text{prod}} \times F_{\text{c prod}} \times N_{\text{sites}} \times N_{\text{refil}} \times 10^3 \times F_{\text{release, ID soil}} \times (1 - F_{\text{release, D soil}})) / (AREA_{\text{exposed-ID}} \times DEPTH_{\text{soil}} \times RHO_{\text{soil}} \times N_{\text{sites}}) (4)$	mg/kg	0.00276

Total soil concentrations around the bait boxes are the sum of the soil concentrations caused by direct and indirect pollution of the soil:

ESD worst case

Total concentration immediately direct to the bait	$C_{\text{local soil}} = C_{\text{local soil-D}} + C_{\text{local soil-ID}}$	mg/kg	0.0217
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Applicant's worst case

Total concentration immediately direct to the bait	$C_{\text{local soil}} = C_{\text{local soil-D}} + C_{\text{local soil-ID}}$	mg/kg	0.0271
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Scenario [2]: waste dumps

This scenario covers control of rats and disposal of rats in waste dumps and landfills where the exposure is assumed to be higher than that described in the open area scenario. In some instances, applications of rodenticides to refuse dumps take place. Mostly the use is limited to occasions of population outbreaks of rats. Often the rodenticides are deployed around the perimeter of the dump, more than in the disposal area itself. The bait may be placed at regular places in special feeding stations in order to prevent other animals from eating the bait.

The worst-case application is for the rat. The scenario is for eradication on an open dump. The scenario indicates 7 applications per year, with 40 kg product per application. There is 90% release of the bait to soil and 365 emission days.

Input parameters for calculating the local emission			
Input	Value	Unit	Remarks

Input parameters for calculating the local emission			
Scenario: use in landfills and dumps			
Amount of product used at each refill/application	40	Kg	
Fraction of active substance in product	29×10^{-3}	%	
Number of emission days for control at waste dumps	365	days	
Number of application	7	-	
Fraction of active substance released to soil	0.73	-	
Area exposed to rodenticide	10000	m ²	
Depth of exposed soil	10	cm	
Bulk density of soil	1.7×10^3	Kg _{wwt} /m ³	

Calculations for Scenario [2]

Calculation of $E_{\text{local soil}}$ (equation 17, ESD PT14)

Parameter	Definition	Units	Value
Amount of product used per application	Q_{prod}	g	40
Fraction of active substance in product	F_{Cprod}	-	0.000029
Number of application sites	N_{sites}	-	7
Fraction of active substance released directly to soil	$F_{\text{release, soil}}$	-	0.9
Local direct emission of active substance to soil from a campaign	$E_{\text{local soil-campaing}} = Q_{\text{prod}} \times F_{\text{Cprod}} \times N_{\text{sites}} \times F_{\text{release, soil}}$ (17)	kg	7.31×10^{-3}

Calculation of $C_{\text{local soil}}$ (equation 18, ESD PT14)

Parameter	Definition	Units	Value
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Parameter	Definition	Units	Value
Local direct emission of active substance to soil from a campaign	$E_{local_{soil, campaign}} (2)$	kg/m ³	7.31×10^{-3}
Area directly exposed to active substance	$AREA_{exposed-D}$	m ²	10000
Depth of exposed soil	$DEPTH_{SOIL}$	M	0.1
Density of exposed soil	RHO_{soil}	kg/m ³	1700
Local concentration in soil due to direct release after a campaign [mg/kg]	$C_{local_{soil-D}} = (E_{local_{soil-D-campaign}} \times 10E3) / (AREA_{exposed-D} \times DEPTH_{soil} \times RHO_{soil} \times N_{sites})$ (18)	mg/kg	0.000430

Scenario 3: open areas

This scenario covers control of rats and water voles in open areas such as around farmland, parks and golf courses where the aim is to prevent “nuisance” from burrows or “soil heaps” or due to public hygiene reasons. Rodenticides are also used to reduce impacts on game rearing or outside food stores (potato/sugar beet clams).

The main release to the environment is expected when impregnated grain is applied into rat holes. By a spoon or a small shovel, the product is normally poured approximately 30 cm into the rat holes, depending on the slope and general accessibility of the hole. The treated holes are closed by a stone, a piece of board or similar immediately after the application to prevent unintended exposure of children or non-target organisms (e.g. birds, cats and dogs).

A typical initial dose for a rat hole is 100-200 g grain.hole-1; and normally application is repeated twice with an interval of 5-6 days. Inspection of the holes to assess the effect of the control action is usually carried out some 5-6 days after application of the poison and again with similar intervals if repeated applications are necessary.

Input parameters for calculating the local emission			
Input	Value	Unit	Remarks
Scenario: use in landfills and dumps			
Amount of product used at each Refilling in the control operation	200	Kg	
Fraction of active substance in product	2.9×10^{-3}	%	
Number of emission days for control at open areas	6	days	
Number of application	2	-	
Fraction of product released to soil during application	0.05	-	

Input parameters for calculating the local emission			
Input	Value	Unit	Remarks
Fraction of product released to soil during use	0.20	-	
Soil volume exposed soil around the hole	0.0085	m ³	
Bulk density of soil	1.7 x 10 ³	Kg _{wwt} /m ³	

Calculations for Scenario [3]

Calculation of Elocal_{soil-campaign} (equation 9, ESD PT14)

Parameter	Definition	Units	Value
Amount of product used at each refilling in the control operation	Q _{prod}	g	200
Fraction of active substance in product	F _{Cprod}	-	0.000029
Number of application sites	N _{sites}	-	1
Number of refills per site	N _{refil}	-	2
Fraction of the product released to soil during application	F _{release, soil, appl}	-	0.05
Fraction of product released to soil during use	F _{release, soil, use}		0.2
Local emission of active substance to soil during a campaign	Elocal_{soil-campaign} = (Q_{prod} x F_{Cprod} x N_{sites} x N_{refil} x (F_{release, soil, appl} + F_{release, soil})) (9)	g	2.90 x 10⁻³

Calculation of Clocal_{soil-campaign} (equation 10, ESD PT14)

Parameter	Definition	Units	Value
Local emission to soil from the episode	Elocal _{soil-campaign}	g	2.90 x 10 ⁻³
Soil volume exposed to rodenticide	V _{soil exposed} (eq. 9a ESD)	m ³	8.50 x 10 ⁻³
Density of wet exposed soil	RHO _{soil}	kg/m ³	1700
Local concentration in soil after a campaign	Clocal_{soil-campaign} = (Elocal_{soil-campaign} x 10³) / (V_{soil exposed} x RHO_{soil}) (10)	mg/kg	2.01 x 10⁻¹

Fate and distribution in exposed environmental compartments

Identification of relevant receiving compartments based on the exposure pathway									
	Fresh-water	Freshwater sediment	Sea-water	Seawater sediment	STP	Air	Soil	Ground-water	Other
Scenario 1	No	No	No	No	No	No	Yes	Yes	
Scenario 2	No	No	No	No	No	No	Yes	Yes	
Scenario 3	No	No	No	No	No	No	Yes	Yes	

Calculated PEC values

The Predicted Environmental Concentrations for this emission scenario are calculated according TGD II.

Summary table on calculated PEC values ¹								
	PEC _s TP	PEC _{water}	PEC _{sed}	PEC _{seawater}	PEC _{seased}	PEC _{soil}	PEC _{GW} ²	PEC _{air}
	[mg/l]	[mg/l]	[mg/kg _{ww}]	[mg/l]	[mg/kg _{wwt}]	[mg/kg]	[µg/l]	[mg/m ³]
Scenario 1	-	-	-			0.027	1.68x10 ⁻¹	
Scenario 2	-	-	-			0.00043	2.66x10 ⁻¹	
Scenario 3						0.201	1.24	

Primary and secondary poisoning

Although the quantity of the active substance has been reduced in the product conclusions from the first environmental risk assessment remain valid.

3.8.2 Risk characterisation

Atmosphere

Emission to the atmosphere from this use is considered negligible.

Terrestrial compartment

Calculated PEC/PNEC values	
	PEC/PNEC _{soil}
Scenario 1	0.038

Scenario 2	0.0005
Scenario 3	0.23

Conclusion:

All scenarios assessed present ratios of PEC/ PNEC less than 1 so, an acceptable level of risk to soil are predicted.

Groundwater

For all scenarios the value obtained for ground water is higher than 0.1 µg/L. As a Tier 2, a FOCUS modelling was realized to refine the PEC groundwater for the typical scenario.

Parameters use in FOCUS:

Model used	FOCUS PEARL
Years of simulation	1
Application rate	0.0000145 kg/ha (in and around building and open areas scenarios) 0.0000365 kg/ha (waste dump scenario)
Standard crop for arable land	Maize (for agricultural soil) Grass (alfalfa)
Application depth	Incorporation 0 cm
Date of application	12 application years
Molar mass	523.4 g.mol ⁻¹
Vapour pressure	< 10 ⁻⁶ Pa at 20°C
Water solubility	0.24 mg.L ⁻¹ at 20°C
Kom	5322.7 L.kg ⁻¹ at 20°C
Freundlich exponent	1
DT50soil	157 d at 12°C
Coefficient for uptake for plant	0

The same results obtained were obtained for all scenarios, see the following table:

LOCATION	MAIZE	ALFALFA
CHATEAUDUN	0.00000	0.00000
HAMBURG	0.00000	0.00000
JOKIOINEN	0.00000	0.00000

KREMSMUENSTE	0.00000	0.00000
OKEHAMPTON	0.00000	0.00000
PIACENZA	0.00000	0.00000
PORTO	0.00000	0.00000
SEVILLA	0.00000	0.00000
THIVA	0.00000	0.00000

According to the FOCUS modelling, the risk is acceptable in groundwater for the use of IKEBANA BRODIFACOUM CEREAL in all scenarios.

Primary and secondary poisoning

Although the quantity of the active substance has been reduced, conclusions from the first risk assessment remain valid.

3.9 Assessment of a combination of biocidal products

A use with other biocidal products is not intended.

3.10 Comparative assessment

As brodifacoum is a Candidate for Substitution, a comparative assessment must be carried out as part of the evaluation process.

The Biocidal Products Committee of the European Chemicals Agency published its Opinion on Questions regarding the comparative assessment of anticoagulant rodenticides on 02 March 2017 (Document no. ECHA/BPC/145/2017).

The decision states that:

- In the absence of anticoagulant rodenticides, the use of rodenticide biocidal products containing other active substances would lead to an inadequate chemical diversity to minimize the occurrence of resistance in the target harmful organisms. These products also show some significant practical or economical disadvantages for the relevant uses.
- There is insufficient scientific evidence to prove that non-chemical alternative methods of rodent control are sufficiently effective according to the criteria established in agreed Union guidance with a view to prohibit or restrict the authorised uses of anticoagulant rodenticides.

The Decision forms the basis of the COMMISSION IMPLEMENTING DECISION (EU) 2017/1532 of 7 September 2017 addressing questions regarding the comparative assessment of anticoagulant rodenticides in accordance with Article 23(5) of Regulation (EU) No 528/2012 of the European Parliament and of the Council.

On the basis of this comparative assessment, the authorisation of rodenticide products containing brodifacoum is justified