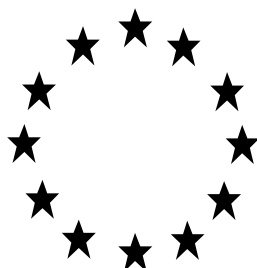


Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products

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



Product identifier in R4BP	AGRORAT BRODI-3
Product type(s):	14 (Rodenticide)
Active ingredient(s):	Brodifacoum
Case No. in R4BP	BC-GF030772-53 (NA-MAC) BC-XD018585-33 (NA-RNL)
Asset No. in R4BP	ES-0008997-0000
Evaluating Competent Authority	Spain
Internal registration/file no	ES/APP(NA)-2018-14-00250
Date	February 2018 (March 2023)

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## **Overview of applications**

<b>Application type</b>	<b>Ref MS</b>	<b>Case number/Asset number in the ref MS</b>	<b>Decision date</b>	<b>Assessment carried out (i.e. first authorisation / amendment /renewal)</b>
NA-APP	ES	BC-DP010572-44/ ES-0008997-0000	30/06/2015	First authorisation
NA-AAT	ES	BC-WP022647-12/ ES-0008997-0000	29/03/2016	Amendment (Confidential SPC)
NA-AAT	ES	BC-AY027946-07/ ES-0008997-0000	01/09/2016	Amendment
NA-MAC	ES	BC-GF030772-53/ ES-0008997-0000	28/02/2018	Major change
NA-RNL	ES	BC-XD018585-33/ ES-0008997-0000	28/02/2018	Renewal
NA-AAT	ES	BC-HU038436-16/ ES-0008997-0000	20/03/2018	Amendment
NA-MIC	ES	BC-AT039604-27/ ES-0008997-0000	06/06/2018	Minor change
NA-AAT	ES	BC-VB057575-33/ ES-0008997-0000	March 2020	Amendment
NA-ADC	ES	BC-JQ084153-26 ES-0008997-0000	March 2023	Administrative change

## 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.

The initial evaluation of the biocidal product AGRORAT BRODI-5 containing of brodifacoum active substance at a level of 0.005% w/w should be taken into account. As the name of the product refers to the content in active substance of the product, 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, AGRORAT BRODI-3, 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 AGRORAT BRODI-3 is effective in the proposed areas of use, at the recommended dose rate.

According to Commission Regulation (EU) 2016/1179 the product AGRORAT BRODI-3, 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, AGRORAT BRODI-3 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 AGRORAT BRODI-3 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

AGRORAT BRODI-3
CLEAM RAT GRANOS

#### 2.1.2 Manufacturer(s) of the product

<b>Name of manufacturer</b>	LABORATORIOS AGROCHEM S.L.
<b>Address of manufacturer</b>	C/ Tres Rieres, 10 08292 - Esparreguera (Barcelona) SPAIN
<b>Location of manufacturing sites</b>	C/ Tres Rieres, 10 08292 - Esparreguera (Barcelona) SPAIN

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

<b>Active substance</b>	BRODIFACOUM
<b>Name of manufacturer</b>	ACTIVA S.r.l. / Dr. TEZZA S.r.l.
<b>Address of manufacturer</b>	ACTIVA S.r.l. Via Feltre, 32 20132 – Milano ITALY
<b>Location of manufacturing sites</b>	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 4).
- 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
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## 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/or 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/or 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/or 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	<p><b>Mice:</b> 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 5-10m (5m in case of strong infestation and 10m in case of weak infestation).</p> <p><b>Rats:</b> bait boxes with 100g 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>
Category(ies) of users	General public
Pack sizes and packaging material	<p><b>Maximum pack size of 150g.</b></p> <p>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</p>

#### 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. Refill 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	<b>Rats:</b> 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	<b>Maximum pack size of 150g.</b>  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	<b>Mice:</b> 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	<b>Minimum pack size of 3 kg.</b> Number of packed bags per packaging: up to 30 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. In this case, the maximum pack size is 10kg.

#### 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	<b>Rat:</b> 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	<b>Minimum pack size of 3 kg.</b>  Number of packed bags per packaging: up to 30 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. In this case, the maximum pack size is 10kg.

#### 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><b>Rats:</b> 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><b>Mice:</b> 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><b>Minimum pack size of 3 kg.</b></p> <p>Number of packed bags per packaging: up to 30 kg.</p> <p>Grams/kg of bait per packed bag: individual sachets from 10g to 100g.</p> <p>Packaging material: Bags, Sacks, Buckets, Tubes, bottles and Sachets.</p> <p>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. In this case, the maximum pack size is 10kg.</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	<b>Rats:</b> bait boxes with 100-200 g per baiting point <b>Mice:</b> bait boxes with 60-100 g per baiting point
Category(ies) of users	Trained professionals
Pack sizes and packaging material	<b>Minimum pack size of 3 kg.</b> Number of packed bags per packaging: up to 30 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. In this case, the maximum pack size is 10kg.

#### **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 Direct application of ready-to-use bait into burrows.
Application rate(s) and frequency	<b>Rats:</b> bait boxes with 100-200 g per baiting point <b>Mice:</b> bait boxes with 60-100 g per baiting point  Burrow: 200 g of bait per burrow only inside of tamper resistant baiting stations
Category(ies) of users	Trained professionals
Pack sizes and packaging material	<b>Minimum pack size of 3 kg.</b>  Number of packed bags per packaging: up to 30 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. In this case, the maximum pack size is 10kg.

### 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 (except when directly applied to burrows)
- Follow any additional instructions provided by the relevant code of best practice.
- Baits must be placed to minimise the exposure to non-target species and children.
- Cover or block the entrances of baited burrows to reduce the risks of bait being rejected and spilled.

### 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 Direct application of ready-to-use bait into burrows.
Application rate(s) and frequency	<b>Rats:</b> bait boxes with 100-200 g per baiting point.  Burrow: 200 g of bait per burrow only inside of tamper resistant baiting stations.
Category(ies) of users	Trained professionals
Pack sizes and packaging material	<b>Minimum pack size of 3 kg.</b>  Number of packed bags per packaging: up to 30 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. In this case, the maximum pack size is 10kg.

#### 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 (except when directly applied to burrows).
- Follow any additional instructions provided by the relevant code of best practice.
- Baits must be placed to minimise the exposure to non-target species and children.
- Cover or block the entrances of baited burrows to reduce the risks of bait being rejected and spilled.

### 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 device. 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 <sup>2</sup> 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 <sup>2</sup> depending on the level of infestation.
Category(ies) of users	General public
Pack sizes and packaging material	- <b>Loose grain:</b> 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>- <b><u>Grain in sachets</u></b>: 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 <sup>2</sup> 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 <sup>2</sup> depending on the level of infestation.
Category(ies) of users	Professionals
Pack sizes and packaging material	<p>- <b>Loose grain:</b> 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>- <b>Grain in sachets:</b> 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 <sup>2</sup> 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 <sup>2</sup> depending on the level of infestation.
Category(ies) of users	Trained professionals
Pack sizes and packaging material	<p><b>- Loose grain:</b> 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>- <b>Graininsachets:</b> 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

Property	Guideline and Method	Purity of the test substance (% (w/w))	Results	Reference
Storage stability test – <b>accelerated storage</b>	CIPAC MT46.3	0.0029	<p>Brodifacoum active ingredient initial content: 0.002939 ± 0.000032% w/w</p> <p>Brodifacoum active ingredient final content: 0.002806 ± 0.000036% w/w</p> <p><math>\Delta[C] = - 4.5\%</math> The result complies with the tolerance value (-10%).</p>	IUCLID 3.4.1
Storage stability test – <b>long term storage at ambient temperature</b>	Guidance on Data Requirements for Active Substances and Biocidal Products	0.0029	<p>Study ongoing</p> <p>Final results: September 2019</p>	IUCLID 3.4.1

Property	Guideline and Method	Purity of the test substance (% (w/w))	Results	Reference	
Particle size and distribution dry sieve	CIPAC MT187 and CIPAC MT 170	0.0029			IUCLID 3.4.1
Attrition resistance of granules	CIPAC MT178	0.0029	Result: 100%		IUCLID 3.5
Dustiness	CIPAC MT 171	0.0029	Result: 0.3 mg (nearly dust-free)		IUCLID 3.4.1

Apart from the properties mentioned above, 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 those physical, chemical and technical properties not provided remains valid.

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**

AGRORAT BRODI-3 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 AGRORAT BRODI-5) and is used against Brown rat (*Rattus norvegicus*) and House mouse (*Mus musculus*).

Taking into account that a efficacy data package with 0.005% w/w brodifacoum was submitted, and that the change in the formulation is basically in the content of active substance, it is assumed that the level of palatability remains the same with the new composition being at least 20% of palatability in laboratory tests except for rats (with fresh bait) where the test result showed a palatability <20%.

The applicant has submitted new studies in order to support the efficacy of the new formulation of the product AGRORAT BRODI-3 against *Rattus norvegicus* and *Mus musculus*: two semi-field trials and two field trials. These studies were carried out at a concentration of 0.0027% w/w brodifacoum, which is considered a worse case, and thus demonstrating the efficacy of the biocidal product with the new concentration of 0.0029% w/w brodifacoum given that the change in the content of co-formulants it is considered minimum and therefore it is not affected to the efficacy of the product. Please, see the summary of the semi-field and field trials submitted by the applicant.

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.

Regarding the use of this biocidal product in burrow, the application rate will be 200g.

Experimental data on the efficacy of the biocidal product against target organism(s)							
Function	Field of use envisaged	Test substance	Test organisms	Test method	Test system / concentrations applied / exposure time	Test results: effects	Reference
Rodenticide	Semi-field test	<b>Brodifacoum 0.0027% w/w grain bait</b>	Brown rat ( <i>Rattus norvegicus</i> ) 5 females 5 males  Weight between 150 and 230g.	Semi-field test: Mortality and palatability. According to TNG for PT 14 and Transitional Guidance for PT14	Rats placed by sex in a circular conditioned space with three rectangular surfaces at 20.30-24.30°C of temperature with an air exchange of 20-35 rph and a relative humidity between 57% and 74%. The total area of the habitat per sex was 2.7414 m <sup>2</sup> (0.548m <sup>2</sup> / rat). Photoperiod: 12 h light/12 h dark Food, drink and test item were placed in vessels ad libitum. Acclimation period (3 days) Pre-feeding period (4 days), Administration period (Brodifacoum grain bait vs. EPA STANDARD, 4 days) and Observation period.	Mean consumption test item: 42.11% (304.9g)  Average mortality occurrence: 100% at day 6.1 after the introduction of the test item.  Palatability: Acceptable (≥20%) Mortality: Acceptable (≥90%)	IUCLID 6.7
Rodenticide	Semi-field test	<b>Brodifacoum 0.0027% w/w grain bait</b>	House mouse ( <i>Mus musculus</i> ) 5 females 5 males  Weight between 25 and 40g.	Semi-field test: Mortality and palatability. According to TNG for PT 14 and Transitional Guidance for PT14	Mice placed by sex in a circular conditioned space with two rectangular surfaces at 19.61-24.52°C of temperature with an air exchange of 20-35 rph and a relative humidity between 60% and 73%. The total area of the habitat per sex was 1.8145 m <sup>2</sup> (0.363m <sup>2</sup> / mouse). Photoperiod: 12 h light/12 h dark. Food, drink and test item were placed in vessels ad libitum. Acclimation period (3 days), Pre-feeding period (4 days), Administration period (Brodifacoum grain bait vs. EPA STANDARD, 4 days) and Observation period.	Mean consumption test item: 40.58% (53.2 g) Average mortality occurrence: 100% at day 7.4  Palatability: Acceptable (≥20%) Mortality: Acceptable (≥90%)	IUCLID 6.7
Rodenticide	Field test (Indoor/Outdoor)	<b>Brodifacoum 0.0027% w/w grain bait</b>	Brown rat ( <i>Rattus norvegicus</i> Berk)	Field test. According to Transitional Guidance for	The trial was set up in an agricultural habitat (breeding stables for cows, fodder and equipment warehouses).	-Pre-treatment: consumption (on the last 4 days): 768.8 g/day and	

Experimental data on the efficacy of the biocidal product against target organism(s)							
Function	Field of use envisaged	Test substance	Test organisms	Test method	Test system / concentrations applied / exposure time	Test results: effects	Reference
				PT14, ECHA Guidance on the Biocidal Products Regulation. Volume II Efficacy - Assessment and Evaluation (Parts B+C). Version 1. February 2017 and OEPP/EPPO principles: PP 1/114(2)	-Pre-treatment census (5 days): census bait stations (100 g) and tracking patches -Lag phase: 4 days -Treatment (17 days) : 100 g of poisoned test bait were daily put down in each station -Lag phase: 5 days -Post-treatment census (5 days): census bait stations (100 g) and tracking patches.  *Each bait station will be spaced out 5-10 m from each other (5 m in case of strong infestation; 10 m in case of weak infestation).	average tracking score values of 17-24. Estimate of a population size of a minimum of 35-45 rats. -Post-treatment: no bait takes was recorded. Tracking patches score= 0  Efficacy = 100 %  Percentage of bait consumed after the control operation compared to the amount of bait consumed before the control operation is ≤10% (according TNG for PT 14)	
Rodenticide	Field test (Indoor)	<b>Brodifacoum 0.0027% w/w grain bait</b>	House mouse ( <i>Mus musculus</i> L.)	Field test. According to Transitional Guidance for	The trial was set up in an agricultural habitat (breeding stables for cows, fodder and equipment warehouses). -Pre-treatment census (5 days): census bait	-Pre-treatment: consumption (on the last 4 days) of 467.8 g/day	

Experimental data on the efficacy of the biocidal product against target organism(s)							
Function	Field of use envisaged	Test substance	Test organisms	Test method	Test system / concentrations applied / exposure time	Test results: effects	Reference
				PT14, ECHA Guidance on the Biocidal Products Regulation. Volume II Efficacy - Assessment and Evaluation (Parts B+C). Version 1. February 2017 and OEPP/EPPO principles: PP 1/114(2)	stations (60 g) and tracking patches -Lag phase: 4 days -Treatment (14 days) : 60 g of poisoned test bait were daily put down in each station -Lag phase: 4 days -Post-treatment census (5 days): census bait stations (60 g) and tracking patches.  *Each bait station will be spaced out 5-10 m from each other (5 m in case of strong infestation; 10 m in case of weak infestation).	and average tracking score values of 12-15. Estimate of a population size of a minimum of 110-120 rats. -Post-treatment: no bait takes was recorded. Tracking patches score= 0  Efficacy = 100 % Percentage of bait consumed after the control operation compared to the amount of bait consumed before the control operation is ≤10% (according TNG for PT 14)	

### 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 path	Primary (direct) exposure			Secondary (indirect) exposure		
	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
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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		
<p>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).</p>		
	Parameters	Value
Tier 1	A.S. content of BP	0.0029%
	Dermal absorption:	3%
	Operator body weight:	60 kg

Description of Scenario [1] - Trained professional user		
	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 x 10 <sup>-6</sup> mg/kg bw/day		1.863 x 10 <sup>-6</sup> mg/kg bw/day
Scenario [1]	Tier 2 / PPE (gloves)	-	1.863 x 10 <sup>-7</sup> mg/kg bw/day	-	1.863 x 10 <sup>-7</sup> mg/kg bw/day

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

Description of Scenario [2] - Trained professional user		
<p>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.</p> <p>The total systemic exposure has been assessed with (Tier 2) and without PPE (Tier 1).</p>		
	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	-	$8.793 \times 10^{-7}$ mg/kg bw/day	-	$8.793 \times 10^{-7}$ mg/kg bw/day
Scenario [2]	Tier 2 / PPE (gloves)	-	$8.793 \times 10^{-8}$ mg/kg bw/day	-	$8.793 \times 10^{-8}$ 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		$8.793 \times 10^{-7}$	-	$8.793 \times 10^{-7}$ mg/kg bw/day
Scenarios [1 + 2] / Tier 2		$8.793 \times 10^{-8}$	-	$8.793 \times 10^{-8}$ mg/kg bw/day

**Professionals user**

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

Description of Scenario [1] – Professional user		
<p>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.</p>		
	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 x 10 <sup>-7</sup> mg/kg bw/day		1.4970 x 10 <sup>-7</sup> 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 x 10 <sup>-7</sup> mg/kg bw/day		2.75 x 10 <sup>-7</sup> 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 x 10 <sup>-7</sup> mg/kg bw/day	-	4.22x 10 <sup>-7</sup> mg/kg bw/day

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

<b>Description of Scenario [1] – General public ( Non-professional) users</b>		
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]**

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

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

<b>Description of Scenario [2] – general public (Non-professional) users</b>		
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)
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### 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	-	$2.75 \times 10^{-7}$ mg/kg bw/day		$2.75 \times 10^{-7}$ 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	-	$4.22 \times 10^{-7}$ mg/kg bw/day	-	$4.22 \times 10^{-7}$ 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 x 10 <sup>-2</sup> mg/kg bw/d	1.45 x 10 <sup>-2</sup> mg/kg bw/d
Scenario [3.b.]		-	-	2.9 x 10 <sup>-5</sup> mg/kg bw/d	2.9 x 10 <sup>-5</sup> 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 <sup>-6</sup> mg/kg bw/day
1	Trained professional user	Tier 2/ PPE	1.863 x 10 <sup>-7</sup> mg/kg bw/day
1.	Professional user	Tier 1/ no PPE	1.4970 x 10 <sup>-7</sup> mg/kg bw/d
1.	General Public (Non-professional)	No PPE	1.4790 x 10 <sup>-7</sup> mg/kg bw/d
2.	Trained professional user	Tier 1/ no PPE	8.793 x 10 <sup>-7</sup> mg/kg bw/d
2.	Trained professional user	Tier 2/PPE	8.793 x 10 <sup>-8</sup> mg/kg bw/day
2.	Professional user	Tier 1/ no PPE	2.75 x 10 <sup>-7</sup> 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	$2.75 \times 10^{-7}$ mg/kg bw/d
3.	General public (Children)	Tier 1 (without efficient bitter agent)	$1.45 \times 10^{-2}$ mg/kg bw/day
3.	General public (Children)	Tier 2 (with bitter agent)	$2.9 \times 10^{-5}$ 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 <sup>1</sup>	Correction for oral absorption	Value (mg/kg bw/day)
AEL <sub>acute</sub>	-	0.001	300	-	$3.3 \times 10^{-6}$
AEL <sub>medium-term</sub>	-	0.002	300	-	$6.67 \times 10^{-6}$
AEL <sub>long-term</sub>	-	0.001	300	-	$3.3 \times 10^{-6}$

<sup>1</sup> Assessment factor have been obtained from the Brodifacoum's CAR.

The acceptable level of exposure for single use (AEL<sub>acute</sub>) is established in the EU Endpoint List as  $3.3 \times 10^{-6}$  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<sub>medium</sub>) is established in the EU Endpoint List as  $6.67 \times 10^{-6}$  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<sub>chronic</sub>) is established in the EU Endpoint List as  $3.3 \times 10^{-6}$  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)
		0.002	$3.3 \times 10^{-6}$			
Application / Scenario [1]	Tier 1			$1.86 \times 10^{-6}$	56,47	Yes
	Tier 2			$1.86 \times 10^{-7}$	5.65	Yes
Cleaning / Scenario [2]	Tier 1			$8.186 \times 10^{-7}$	26.64	Yes
	Tier 2			$8.186 \times 10^{-8}$	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	$3.3 \times 10^{-6}$	$2.74 \times 10^{-6}$	83.11	Yes
	Tier 2			$2.74 \times 10^{-7}$		8.31

#### 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)
		0.002	$3.3 \times 10^{-6}$			
Application / Scenario [1]	Tier 1			$1.4790 \times 10^{-7}$	4.48	Yes

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)
Cleaning / Scenario [2]	Tier 1			$2.75 \times 10^{-7}$	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	$3.3 \times 10^{-6}$	$4.23 \times 10^{-7}$	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			$1.4790 \times 10^{-7}$	4.48	Yes
Cleaning / Scenario [2]	Tier 1			$2.75 \times 10^{-7}$	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	$3.3 \times 10^{-6}$	$4.22 \times 10^{-7}$	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 <sub>acute</sub> 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	$3.3 \times 10^{-6}$	$1.45 \times 10^{-2}$	4390000	No
Infants may ingest part of the bait / [3.b]				$2.9 \times 10^{-5}$	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	$3.3 \times 10^{-6}$	$1.86 \times 10^{-6}$	56.47	yes
1.	Trained professional user	Tier 2	$3.3 \times 10^{-6}$	$1.86 \times 10^{-7}$	5.65	Yes
2.	Trained professional user	Tier 1	$3.3 \times 10^{-6}$	$8.186 \times 10^{-7}$	26.64	Yes
2.	Trained professional user	Tier 2	$3.3 \times 10^{-6}$	$8.186 \times 10^{-8}$	2.66	Yes
1	Professional user	Tier 1	$3.3 \times 10^{-6}$	$1.4790 \times 10^{-7}$	4.48	yes
2.	Professional user	Tier 1	$3.3 \times 10^{-6}$	$2.56 \times 10^{-7}$	8.32	Yes
1	General public (non- professional)	No PPE	$3.3 \times 10^{-6}$	$1.4790 \times 10^{-7}$	4.48	Yes

Scenario	Exposed group	Tier/PPE	AEL mg/kg bw/d	Estimated uptake mg/kg bw/d	Estimated uptake/ AEL (%)	Acceptable (yes/no)
2.	General public (Non-professional)	No PPE	$3.3 \times 10^{-6}$	$2.56 \times 10^{-7}$	8.32	Yes
3.	General public (Children)	Tier 1 (without efficient bitter agent)	$3.3 \times 10^{-6}$	0.0145	$439 \times 10^4$	No
3.	General public (Children)	Tier 2 (with bitter agent)	$3.3 \times 10^{-6}$	$2.9 \times 10^{-5}$	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

#### 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.
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### **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	$2.9 \times 10^{-3}$	%	
Area directly exposed to active Substance	0.09	m <sup>2</sup>	
Area indirectly exposed to active substance	550	m <sup>2</sup>	
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	$1.7 \times 10^3$	Kg <sub>wwt</sub> /m <sup>3</sup>	

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	
Fraction of active substance in Product	$2.9 \times 10^{-3}$	%	
Area directly exposed to active Substance	0.09	m <sup>2</sup>	
Area indirectly exposed to active substance	550	m <sup>2</sup>	
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	$1.7 \times 10^3$	Kg <sub>wwt</sub> /m <sup>3</sup>	

#### 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 <sub>prod</sub>	g	250
Fraction of active substance in product	F <sub>Cprod</sub>	-	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
<b>Local direct emission rate of active substance to soil from a campaign</b>	<b><math>E_{local\ soil-campaing} = (Q_{prod} \times F_{Cprod} \times N_{sites} \times F_{release, soil}) (2)</math></b>	<b>g</b>	<b>0.0036</b>

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	$F_{release, soil}$	-	0,01
<b>Local direct emission rate of active substance to soil from a campaign</b>	<b><math>E_{local\ soil-campaing} = (Q_{prod} \times F_{Cprod} \times N_{sites} \times F_{release, soil}) (2)</math></b>	<b>g</b>	<b>0,0029</b>

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

Applicant's worst case

Parameter	Definition	Units	Value
Local direct emission rate of active substance to soil from a campaign	$E_{\text{soil, D-campaing}}$ (2)	g	0.0029
Area directly exposed to active substance	$AREA_{\text{exposed-D}}$	m <sup>2</sup>	0.09
Depth of exposed soil	$DEPTH_{\text{SOIL}}$	m	0.1
Number of application sites	$N_{\text{sites}}$	-	10
Density of exposed soil	$RHO_{\text{soil}}$	kg/m <sup>3</sup>	1700
<b>Local concentration in soil due to direct release after a campaign [mg/kg]</b>	<b><math>C_{\text{local soil-D}} = (E_{\text{local soil-D-campaign}} \times 10^3) / (AREA_{\text{exposed-D}} \times DEPTH_{\text{soil}} \times RHO_{\text{soil}} \times N_{\text{sites}})</math> (3)</b>	<b>mg/kg</b>	<b>0.019</b>

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	$Q_{\text{prod}}$	g	250
Fraction of active substance in fproduct	$F_{C_{\text{prod}}}$	-	0.000029
Number of application sites	$N_{\text{sites}}$	-	10
Number of refills per site	$N_{\text{refil}}$	-	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 <sup>2</sup>	550
Depth of exposed soil	$DEPTH_{\text{SOIL}}$	m	0.1
Density of exposed soil	$RHO_{\text{soil}}$	kg/m <sup>3</sup>	1700
<b>Concentration in soil dur to indirect (disperse) release after a campaign</b>	<b><math>C_{\text{local 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}})</math> (4)</b>	<b>mg/kg</b>	<b>0.00345</b>

Applicant's worst case

Parameter	Definition	Units	Value
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Parameter	Definition	Units	Value
Amount of product used at each refill/application	Q <sub>prod</sub>	g	200
Fraction of active substance in product	F <sub>C<sub>prod</sub></sub>	-	0.000029
Number of application sites	N <sub>sites</sub>	-	10
Number of refills per site	N <sub>refil</sub>	-	5
Fraction released indirectly to soil	F <sub>release-ID, soil</sub>		0.9
Fraction released directly to soil	F <sub>release, soil</sub>		0.01
Area indirectly exposed to rodenticide	AREA <sub>exposed-ID</sub>	m <sup>2</sup>	550
Depth of exposed soil	DEPTH <sub>SOIL</sub>	m	0.1
Density of exposed soil	RHO <sub>soil</sub>	kg/m <sup>3</sup>	1700
<b>Concentration in soil due to indirect (disperse) release after a campaign</b>	<b>C<sub>local soil-ID</sub> = ((Q<sub>prod</sub> x F<sub>C<sub>prod</sub></sub> x N<sub>sites</sub> x N<sub>refil</sub> x 10<sup>3</sup> x F<sub>release-ID soil</sub> x (1-F<sub>release,D soil</sub>)) / (AREA exposed-ID x DEPTH<sub>soil</sub> x RHO<sub>soil</sub> x N<sub>sites</sub>) (4)</b>	<b>mg/kg</b>	<b>0.00276</b>

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

<b>Total concentration immediately direct to the bait</b>	<b>C<sub>local soil</sub> = C<sub>local soil-D</sub> + C<sub>local soil-ID</sub></b>	<b>mg/kg</b>	<b>0.0217</b>
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Applicant's worst case

<b>Total concentration immediately direct to the bait</b>	<b>C<sub>local soil</sub> = C<sub>local soil-D</sub> + C<sub>local soil-ID</sub></b>	<b>mg/kg</b>	<b>0.0271</b>
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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
Scenario: use in landfills and dumps			
Amount of product used at each refill/application	40	Kg	
Fraction of active substance in product	$29 \times 10^{-3}$	%	
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 <sup>2</sup>	
Depth of exposed soil	10	cm	
Bulk density of soil	$1.7 \times 10^3$	Kg <sub>wwt</sub> /m <sup>3</sup>	

#### Calculations for Scenario [2]

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

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

Calculation of C local soil (equation 18, ESD PT14)

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

### 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<sup>-1</sup>; 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	$2.9 \times 10^{-3}$	%	
Number of emission days for control at open areas	6	days	
Number of application	2	-	
Fraction of product	0.05	-	

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

### Calculations for Scenario [3]

#### Calculation of Elocal<sub>soil-campaign</sub> (equation 9, ESD PT14)

Parameter	Definition	Units	Value
Amount of product used at each refilling in the control operation	Q <sub>prod</sub>	g	200
Fraction of active substance in product	F <sub>Cprod</sub>	-	0.000029
Number of application sites	N <sub>sites</sub>	-	1
Number of refills per site	N <sub>refil</sub>	-	2
Fraction of the product released to soil during application	F <sub>release, soil, appl</sub>	-	0.05
Fraction of product released to soil during use	F <sub>release, soil, use</sub>		0.2
<b>Local emission of active substance to soil during a campaign</b>	<b>Elocal<sub>soil-campaign</sub> = (Q<sub>prod</sub> x F<sub>Cprod</sub> x N<sub>sites</sub> x N<sub>refil</sub> x (F<sub>release, soil, appl</sub> + F<sub>release, soil</sub>)) (9)</b>	<b>g</b>	<b>2.90 x 10<sup>-3</sup></b>

#### Calculation of Clocal<sub>soil-campaign</sub> (equation 10, ESD PT14)

Parameter	Definition	Units	Value
Local emission to soil from the episode	Elocal <sub>soil-campaign</sub>	g	2.90 x 10 <sup>-3</sup>
Soil volume exposed to rodenticide	V <sub>soil exposed</sub> (eq. 9a ESD)	m <sup>3</sup>	8.50 x 10 <sup>-3</sup>
Density of wet exposed soil	RHO <sub>soil</sub>	kg/m <sup>3</sup>	1700
<b>Local concentration in soil after a campaign</b>	<b>Clocal<sub>soil-campaign</sub> = (Elocal<sub>soil-campaign</sub> x 10<sup>3</sup>) / (V<sub>soil exposed</sub> x</b>	<b>mg/kg</b>	<b>2.01 x 10<sup>-1</sup></b>

Parameter	Definition	Units	Value
	$RHO_{\text{soil}}$ (10)		

### ***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 <sup>1</sup>								
	PEC <sub>s</sub> TP	PEC <sub>water</sub>	PEC <sub>sed</sub>	PEC <sub>seawater</sub>	PEC <sub>seased</sub>	PEC <sub>soil</sub>	PEC <sub>GW<sup>2</sup></sub>	PEC <sub>air</sub>
	[mg/l]	[mg/l]	[mg/kg <sub>ww</sub> i]	[mg/l]	[mg/kg <sub>wwt</sub> ]	[mg/kg]	[µg/l]	[mg/m <sup>3</sup> ]
Scenario 1	-	-	-			0.027	1.68x10 <sup>-1</sup>	
Scenario 2	-	-	-			0.00043	2.66x10 <sup>-1</sup>	
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 <sub>soil</sub>
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.

The applicant has requested, for the product renewal, to allow direct application of bait into burrows by trained professional users in line with Addendum 4 of the trained professional SPC. The “open areas” scenario was evaluated in the first authorization and no risk to the soil compartment was found when the bait is applied directly to the soil although, the potential exists for bait to be spilled or pushed out of the burrow into the surrounding area, with the potential for primary poisoning. ES CA allow this use for trained professionals taken into account the Addendum 4.

#### **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 <sup>-1</sup>
Vapour pressure	< 10 <sup>-6</sup> Pa at 20°C
Water solubility	0.24 mg.L <sup>-1</sup> at 20°C
Kom	5322.7 L.kg <sup>-1</sup> 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 AGRORAT BRODI-3 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.

## 4 Confidential annex (Access level: “Restricted” to applicant and authority)

### 4.1 Full composition of the product

Common name	IUPAC name	Function	CAS number	EC number	Content (% w/w)
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
Denatonium benzoate	phenylmethyl-[2- [(2,6-dimethylphenyl)amino]- 2-oxoethyl]-diethylammonium benzoate	Bittering agent	3734-33-6	223-095-2	0.001
Triethanolamine	2,2',2''-nitritotriethanol	Solvent	102-71-6	203-049-8	0.050
Polyethylene glycol 200	polyethylene glycol 200	Solvent	25332-68-3	500-038-2	0.050
Propylene glycol	1,2-propanediol	Adjuvant	57-55-6	200-338-0	0.930
Sodium benzoate	Sodium benzoate	Preservative	532-32-1	208-534-8	0.500
Calcium hydroxide	calcium hidroxide	Stabilizer	1305-62-0	215-137-3	0.500
Dye	n.a.	Dye	n.a.	n.a.	0.100
Mix of cereals	n.a.	Bait	n.a.	n.a.	97.8661

#### 4.2 List of studies for the biocidal product (Confidential data)

IUCLID Section	Author(s)	Year	Title, Source (where different from company) Company, Report No. GLP (where relevant) / (Un) Published
3.4.1	De Ryckel, B.	2017	Title: Accelerated and shelf-life storage stability of Brodifacoum 0.0027% w/w grain bait. Study Plan No: 24444
6.7	Gonzalez J.	2016a	Title: Efficacy evaluation of Brodifacoum 0.0027% w/w, grain bait. Semi field trial Study with rats ( <i>Rattus norvegicus</i> ). Study Unitat de Toxicologia Experimental i Ecotoxicologia, Plataforma Tecnològica del Parc Científic de Barcelona. Study No: 68016-1
6.7	Gonzalez J.,	2016b	Title: Efficacy evaluation of Brodifacoum 0.0027% w/w, grain bait. Semi field trial Study with rats ( <i>Mus musculus</i> ). Unitat de Toxicologia Experimental i Ecotoxicologia, Plataforma Tecnològica del Parc Científic de Barcelona. Study No: 68016-2
6.7	Rovetto, I.	2016a	Title: Efficacy evaluation of BRODIFACOUM 0.0027% GRAIN BAIT (brodifacoum 0.0027% a.i., grain bait) against Norway rat ( <i>Rattus norvegicus</i> Berk.) Trial code: 2060.BCD.SAG17
6.7	Rovetto, I.	2016b	Title: Efficacy evaluation of BRODIFACOUM 0.0027% GRAIN BAIT (brodifacoum 0.0027% a.i., grain bait) against House mouse ( <i>Mus musculus</i> L.)