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SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier

- Trade name: MUSKIL BR

- 1.2 Relevant identified uses of the substance or mixture and uses advised against

Ready for use rodenticide (biocidal product-PT14)

- 1.3 Details of the supplier of the information sheet

- Manufacturer/Supplier:

Zapi S.p.A. Via Terza Strada, 12 35026 Conselve (PD) - Italy

Tel. +39 049 9597737 Fax +39 049 9597735

E-mail address of the competent person responsible for the information sheet: techdept@zapi.it

- Further information obtainable from: Tech. dept.
- **1.4 Emergency telephone number:** Zapi customer service (Tel. +39 049 9597737): 9:00-12:00 / 14:00-17:00 Giftnotruf Berlin 030 30686790 Beratung in Deutsch und English.

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008

The product is not classified, according to the CLP regulation.

- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008 Not applicable
- Hazard pictograms Not applicable
- Signal word Not applicable
- Hazard statements Not applicable
- 2.3 Other hazards
- Results of PBT and vPvB assessment

- PBT:		
56073-10-0 brodifacoum		
PBT Brodifacoum fulfils the P, B and T criteria.		
- vPvB:		
56073-10-0 brodifacoum		
vPvB Brodifacoum fulfils the vP criterion.		

- Determination of endocrine-disrupting properties

The mixture does not contain substances with endocrine disrupting properties in concentration equal to or greater than 0.1% by weight.

SECTION 3: Composition/information on ingredients

- 3.2 Mixtures
- **Description:** Mixture of substances listed below with nonhazardous additions.

- Dangerous components:		
CAS: 56073-10-0	brodifacoum	0.0017%
EINECS: 259-980-5 Index number: 607-172-00-1	Acute Tox. 1, H300 (ATE=0.4mg/kg bw); Acute Tox. 1, H310 (ATE=3.16mg/kg bw); Acute Tox. 1, H330 (ATE=3.05mg/m3); Repr. 1A, H360D; STOT RE 1, H372; Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10) Specific concentration limits: Repr. 1A; H360: C ≥ 0.003 % STOT RE 1; H372: C ≥ 0.02 % STOT RE 2; H373: 0.002 % ≤ C < 0.02 %	

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- Additional information: For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures

- General information:

Please refer to the instructions below for each specific way of exposure. If medical advice is needed, have product container or label at hand.

- After inhalation: Supply fresh air and to be sure call for a doctor.

- After skin contact:

Wash skin with water.

If symptoms occur call a poison centre or a doctor.

- After eye contact:

If symptoms occur rinse with water.

Remove contact lenses, if present and easy to do.

Call a poison centre or a doctor.

After swallowing:

Rinse mouth.

If symptoms: Call 112/ambulance for medical assistance.

If no symptoms: call a poison centre or a doctor.

Information to Healthcare personnel/doctor: initiate life support measures if needed, thereafter call a POISON CENTRE.

Contact a veterinary surgeon in case of ingestion by a pet.

- 4.2 Most important symptoms and effects, both acute and delayed

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.

- 4.3 Indication of any immediate medical attention and special treatment needed

The primary treatment are the antidote therapy and the clinical assessment. Antidote: Vitamin K1 (phytomenadione). The effectiveness of the treatment should be monitored by measuring the clotting time. Do not interrupt the treatment until the clotting time is back to normality and is stable. Consult a Poison Control Centre.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media

- Suitable extinguishing agents: CO₂, powder or water spray. Fight larger fires with water spray.
- For safety reasons unsuitable extinguishing agents: To our knowledge, there are no unsuitable equipments.
- 5.2 Special hazards arising from the substance or mixture In case of fire, toxic gases may be generated.
- **5.3 Advice for firefighters** Firefighters equipment in accordance with EN469 European standards.

- Protective equipment:

Do not inhale explosion gases or combustion gases.

Firefighters equipment in accordance with EN469 European standards.

- Additional information

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

- 6.2 Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

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Do not allow to enter sewers/ surface or ground water.

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- 6.3 Methods and material for containment and cleaning up:

Pick up mechanically.

After cleaning up, ensure adequate ventilation.

Dispose of the material collected according to regulations.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

-7.1 Precautions for safe handling

Do not smoke near the product.

When using the product, do not eat, drink or smoke.

Wash hands and directly exposed skin after using the product.

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.

Do not use the product close to surface waters (e.g. rivers, ponds, water channels, dykes, irrigation ditches).

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

- Information about fire - and explosion protection:

See Section 6.

See section 5.

-7.2 Conditions for safe storage, including any incompatibilities

- Requirements to be met by storerooms and receptacles:

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.

- Information about storage in one common storage facility:

Do not store near food, drink and feed.

Place the product away from food, drink and animal feeding stuffs, as well as from utensils or surfaces that have contact with these.

- Further information about storage conditions:

Protect from frost.

Protect from humidity and water.

Protect from light.

Store the product at temperature below 35°C.

-7.3 Specific end use(s) This product is a rodenticide bait for rodents' control.

SECTION 8: Exposure controls/personal protection

-8.1 Control parameters

- Ingredients with limit values that require monitoring at the workplace:

The product does not contain any substances for which there are Union workplace exposure limits.

- PNE	Cs				
5607	3-10-0	brodifa	coum		
Oral	PNEC	0.0000	0.0000128 mg/kg bw (bird)		
		0.0000	0.000011 mg/kg bw (mammal)		
	PNEC	0.00004 mg/l (aquatic organisms)			
		>0.0038 mg/l (microorganisms)			
	PNEC	>0.88 mg/kg ww (soil)			
- Othe	er expo	sure l	imit values		
5607	3-10-0	brodifa	coum		
AEL - long term 0.0000033 mg/kg bw/d					

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AEL - medium term | 0.00000667 mg/kg bw/d (Contd. of page 3)

AEL - short term 0.0000067 mg/kg bw/d

-8.2 Exposure controls

- Appropriate engineering controls No further data; see section 7.
- Individual protection measures, such as personal protective equipment

- General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from food, drink and animal feedingstuffs.

Wash hands before breaks and at the end of work.

Do not eat, drink, smoke or sniff while working.

- Respiratory protection: Not required during normal use of the product.
- Hand protection



Professional use: wear protective chemical resistant gloves (EN 374) during product handling phase.

- Material of gloves

Glove materials: nitrile, polychloroprene (neoprene) or fluoroelastomer.

The thickness must, depending on the model and the type of fabric, generally be between 0.5 mm and 1.5 mm.

- Penetration time of glove material

The use of type B gloves, tested with minimum 3 substances (breakthrough time greater than 30 minutes according to EN 374) or higher is recommended.

WARNING:

When selecting specific gloves for use in particular applications and duration of use, other factors should be considered, such as (but not limited to): other chemicals handled, physical demands (cut/puncture protection, manual dexterity, thermal protection) possible body reactions to the glove material, as well as the instructions/specifications provided by the glove manufacturer.

- Eye/face protection Not required during normal use of the product.
- Environmental exposure controls See section 6.
- Risk management measures Follow the above-reported directions.

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties

- General Information

Physical state
 Colour:
 Odour:
 Odour threshold:
 Melting point/freezing point:

Solid

 Light red
 Characteristic
 No data available.

No data available.

- Boiling point or initial boiling point and boiling

range Not applicable (solid).

- Flammability Not flammable (EC 440/2008 No. A.10)

Lower and upper explosion limit

Lower: No data available.
 Upper: No data available.
 Flash point: Not applicable (solid).
 Ignition temperature: No data available.
 Decomposition temperature: No data available.

- **pH at 20°C** 6.6 (CIPAC MT 75.3 - 1% aq.)

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- Viscosity:		
- Kinematic viscosity	Not applicable.	
- Dynamic viscosity:	Not applicable.	
- Solubility		
- water:	Insoluble.	
- Partition coefficient n-octanol/water (log value)	No data available.	
- Vapour pressure:	Not applicable.	
- Density and/or relative density		
- Density:	No data available.	
- Relative density at 20°C	1.1440 g/ml (EC 440/2008 No. A.3)	
- Vapour density	Not applicable.	
- Particle characteristics	No data available	
- 9.2 Other information	No further relevant information available.	
- Appearance:		
- Form:	Solid	
-Information with regard to physical hazard		
classes		
- Explosives	Not explosive	
- Flammable gases	Not applicable	
- Aerosols	Not applicable	
- Oxidising gases	Not applicable	
- Gases under pressure	Not applicable	
- Flammable liquids	Not applicable	
- Flammable solids	Not flammable.	
- Self-reactive substances and mixtures	Not self-reactive	
- Pyrophoric liquids	Not applicable	
- Pyrophoric solids	Not pyrophoric	
- Self-heating substances and mixtures	Not self-heating	
- Substances and mixtures, which emit flammable		
gases in contact with water	Not applicable	
- Oxidising liquids	Not applicable	
- Oxidising solids	Not oxidising	
- Organic peroxides	Not applicable	
- Corrosive to metals	Not applicable	
- Desensitised explosives	Not applicable	

SECTION 10: Stability and reactivity

- 10.1 Reactivity Under standard handling and storing conditions, the product does not show any dangerous reaction.
- 10.2 Chemical stability Stable at room temperature and if used as recommended.
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- 10.3 Possibility of hazardous reactions No dangerous reactions known.

- 10.4 Conditions to avoid

Under standard handling and storing conditions, the product does not show any dangerous reaction.

- 10.5 Incompatible materials:

Store only in original container.

Given the lack of information about possible incompatibilities with other substances, it is recommended not to use it in combination with other products.

- 10.6 Hazardous decomposition products:

No dangerous decomposition products known under normal conditions of storage and use.

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SECTION 11: Toxicological information

- 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
- Acute toxicity Based on available data, the classification criteria are not met.

- LD/LC50 values relevant for classification: 56073-10-0 brodifacoum Oral LD50 0.4 mg/kg bw (male rat and mouse) Dermal LD50 3.16 mg/kg bw (rat) Inhalative LC50/4h 3.05 mg/m³ (rat)

- Skin corrosion/irritation Based on available data, the classification criteria are not met.
- Serious eye damage/irritation Based on available data, the classification criteria are not met.
- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- Germ cell mutagenicity Based on available data, the classification criteria are not met.
- Carcinogenicity Based on available data, the classification criteria are not met.
- Reproductive toxicity

Based on available data, the classification criteria are not met.

56073-10-0 brodifacoum		
developmental toxicity	Clear developmental toxicity was not observed in rabbits or rats. However, as a precaution, Brodifacoum should be considered teratogenic to humans because it contains the same chemical moiety responsible for the teratogenicity of warfarin, a known human teratogenic agent, and it has the same mode of action that is a known mechanism of teratogenicity in humans.	

- STOT-single exposure Based on available data, the classification criteria are not met.
- STOT-repeated exposure

Based on available data, the classification criteria are not met.

56073-10	0 brodifacoum
Oral NOA	EL 0.04 mg/kg bw/d (rat)
	The study reveals that repeated oral exposure results in toxic effects: prothrombin time prolongation, kaolin-caphalin time prolongation, haemorrhage. Based on the results of the acute dermal and inhalation toxicity studies and route-to-route extrapolation, it is justified to assume a similar concern for serious damage to health by prolonged exposure through dermal and inhalation routes also.

- **Aspiration hazard** Based on available data, the classification criteria are not met.
- Additional toxicological information: No further relevant information available.
- 11.2 Information on other hazards

- Endocrine disrupting properties

The mixture does not contain substances with endocrine disrupting properties in concentration equal to or greater than 0.1% by weight.

SECTION 12: Ecological information

-12.1 Toxicity

- Aquatic and/or terrestrial toxicity:		
56073-10-0 brodifacoum		
LC50/14d	(eisenia foetida) >994 mg/kg dry weight >879.6 mg/kg wet weight	
ErC50/72h	0.04 mg/l (selenastrum capricornutum)	

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		058 mg/l (activated sludge) sed on water solubility at pH 7 and T=20°C.
		0038 mg/l (pseudomonas putida)
LC10/011		sed on water solubility at pH 5.2 and T=20°C.
LC50/96h		42 mg/l (oncorhynchus mykiss)
LC50 (diet)		2 mg/kg food (laughing gull)
NOEC (reproductive		038 mg/kg food (bird)
NOEL (reproductive	• • •	00385 mg/kg bw/d (bird)
LD50	• .	1 mg/kg bw (mallard duck)
EC50/48h	0.25	5 mg/l (daphnia magna)
- 12.2 Persistence a	and degrad	ability
56073-10-0 brodiface	oum	
	Not easily biodegradable.	
	Brodifacoum will probably partition into sewage sludge/sediment due to its high log Kow and poor water solubility.	
photolytic half-life 0.083 days. Degrades rapidly by photolysis.		egrades rapidly by photolysis.
Hydrolitic half-life > 1	Hydrolitic half-life > 1 year. Stable at pH 5, 7 and 9.	
- 12.3 Bioaccumula	tive potent	ial
56073-10-0 brodiface	oum	
		BCF fish = 35645 (calculated according to TGD eq. 75, using log Kow = 6.12). BCF earthworm = 15820 (calculated according to TGD ed. 82d, using log Kow = 6.12).
octanol-water partition	n coefficient	log Kow = 6.12 (estimated from measured Koc).
- 12.4 Mobility in so	oil	
56073-10-0 brodiface	oum	
DT50		157 days. Persistent.
organic carbon partition coefficient		Koc = 9155 l/kg (pH 7,1-7.6). Immobile in soil.
soil mobility		Under basic conditions (high pH), Brodifacoum is not likely to be adsorbed onto soils or sewage sludge due to the ionisation of the molecule. Under acidic

- 12.5 Results of PBT and vPvB assessment

- PBT:		
56073-10-0 brodifacoum		
PBT Brodifacoum fulfils the P, B and T criteria.		
- vPvB:		
56073-10-0 brodifacoum		
vPvB Brodifacoum fulfils the vP criterion.		

sludge as the molecule is in its neutral or non-ionised form.

conditions (low pH), Brodifacoum is likely to be adsorbed onto soils or sewage

- 12.6 Endocrine disrupting properties

The mixture does not contain substances with endocrine disrupting properties in concentration equal to or greater than 0.1% by weight.

- 12.7 Other adverse effects

56073-10-0 brodifacoum

. The major environmental concern of Brodifacoum is primary and secondary poisoning of non-target animals.

- General notes:

Hazardous to wildlife.

Do not allow the product to reach ground water, water course or sewage system.

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SECTION 13: Disposal considerations

- 13.1 Waste treatment methods

- Recommendation

At the end of the treatment, dispose uneaten bait and the packaging in accordance with local requirements. Must not be disposed together with household garbage. Do not allow product to reach sewage system. Do not discharge unused product on the ground, into water courses, into pipes (sink, toilets, etc.) nor down the drains.

- Uncleaned packaging:
- Recommendation: Dispose of in accordance with local requirements.

SECTION 14: Transport information

- 14.1 UN number or ID number		
- ADR, IMDG, IATA	Not applicable	
-14.2 UN proper shipping name		
- ADR, IMDG, IATA	Not applicable	
- 14.3 Transport hazard class(es)		
- ADR, ADN, IMDG, IATA		
- Class	Not applicable	
- 14.4 Packing group		
- ADR, IMDG, IATA	Not applicable	
-14.5 Environmental hazards:	Not applicable.	
-14.6 Special precautions for user	Not applicable.	
- 14.7 Maritime transport in bulk according to IMO		
instruments	Not applicable.	
- UN "Model Regulation":	Not applicable	

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Directive 2012/18/EU
- Named dangerous substances ANNEX I None of the ingredients is listed.
- **Seveso category** This product is not subject to Seveso directive dispositions.
- REGULATION (EU) 2019/1021 on persistent organic pollutants (POP) The mixture does not contain substances identified as POP.
- LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)
 The product does not contain any substance included in annex XIV.
- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 30, 75
- Regulation (EU) No 649/2012 (PIC) There are no substances listed in this regulation.
- REGULATION (EU) 2019/1148 Explosive precursors

The mixture does not contain explosives precursors in concentrations equal to or greater than 1%.

- National regulations: No further information available.
- Other regulations, limitations and prohibitive regulations No further information available.
- Substances of very high concern (SVHC) according to REACH, Article 59

 The mixture does not contain SVHC substances in concentration equal to or greater than 0.1% by weight.

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- Regulation (EU) n. 2024/590: substances that deplete the ozone layer

The mixture does not contain substances that deplete the ozone layer.

- 15.2 Chemical safety assessment:

A Chemical Safety Assessment according to Regulation (EC) No. 1907/2006 has not been carried out for the mixture.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. Any responsibility derived from misuse of the product or in case of violation of current regulations is refused.

- Relevant phrases

H300 Fatal if swallowed.

H310 Fatal in contact with skin.

H330 Fatal if inhaled.

H360D May damage the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

- Classification according to Regulation (EC) No 1272/2008

Physico-chemical hazards: the classification of the mixture is based on the criteria established by annex I, part 2, of Regulation (EC) No. 1272/2008. If relevant, the methods are reported in section 9.

Health and environmental hazards: the classification of the mixture is based on the calculation method stated in annex I, parts 3 and 4, of Regulation (CE) No. 1272/2008, using components data.

Abbreviations and acronyms:

RD50: Respiratory Decrease, 50 percent

LC0: Lethal concentration, 0 percent

NOEC: No Observed Effect Concentration

IC50: Inhibitory concentration, 50 percent

NOAEL: No Observed Adverse Effect Level EC50: Effective concentration, 50 percent

EC10: Effective concentration, 10 percent

AEC: Acceptable Exposure Concentration

LL0: Lethal Load, 0 percent

AEL: Acceptable Exposure Limit LL50: Lethal Load, 50 percent

EL0: Effective Load, 0 percent

EL50: Effective Load, 50 percent

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of

Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society) PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern vPvB: very Persistent and very Bioaccumulative Acute Tox. 1: Acute toxicity – Category 1

Repr. 1A: Reproductive toxicity - Category 1A

STOT RE 1: Specific target organ toxicity (repeated exposure) - Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard - Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard — Category 1

References

- Biocidal Products Committee (BPC) opinion June 2016 on the active substance;
- Assessment Report on the active substance (available at ECHA website);

Sources

- The E-Pesticide Manual 2.1 Version (2001)
- Regulation (EC) 1907/2006 and following amendments
- Regulation (EC) 1272/2008 and following amendments
- 4. Regulation (EU) 2020/878
- 5. Regulation (EU) 528/2012
- Regulation (EC) 790/2009 (1st ATP CLP)
- 7. Regulation (EU) 286/2011 (2nd ATP CLP)
- 8. Regulation (EU) 618/2012 (3rd ATP CLP)

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9. Regulation (EU) 487/2013 (4th ATP CLP)

- 10. Regulation (EU) 944/2013 (5th ATP CLP)
- 11. Regulation (EU) 605/2014 (6th ATP CLP)
- 12. Regulation (EU) 2015/1221 (7th ATP CLP)
- 13. Regulation (EU) 2016/918 (8th ATP CLP)
- 14. Regulation (EU) 2016/1179 (9th ATP CLP) 15. Regulation (EU) 2017/776 (10th ATP CLP)

- 15. Regulation (EU) 2017/776 (10th ATP CLP)
 16. Regulation (EU) 2018/669 (11th ATP CLP)
 17. Regulation (EU) 2019/521 (12th ATP CLP)
 18. Regulation (EU) 2018/1480 (13th ATP CLP)
 19. Regulation (EU) 2020/217 (14th ATP CLP)
 20. Regulation (EU) 2020/1182 (15th ATP CLP)

- 21. Regulation (EU) 2021/643 (16th ATP CLP) 22. Regulation (EU) 2021/849 (17th ATP CLP)
- 23. Regulation (EU) 2022/692 (18th ATP CLP)
- 24. Directive 2012/18/EU (Seveso III)
- 25. ECHA web site

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^{- *} Data compared to the previous version altered.