Frontline® Spot-On

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5.2	04.09.2024	000000049052	Date of first issue: 28.10.2019

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

1.1 Product identifier

Trade name : Frontline® Spot-On

Synonyms : with API: Fipronil
Frontline® Spot-On for Cats and Dogs, Frontline® Spot-On Cat, Frontline® Spot-On Dogs S, Frontline® Spot-On Dogs M, Frontline® Spot-On Dogs L, Frontline® Spot-On Dogs XL, Frontline® Top Spot, Veloxa® Spot-On

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

Use of the Substance/Mixture : Veterinary product

Recommended restrictions on use : Safety Data Sheet only for the professional user., For veterinary use only, Refer to the product insert for complete instructions on usage

1.3 Details of the supplier of the safety data sheet

Company : Boehringer Ing. Pharma GmbH & Co.KG
Binger Straße 173
55216 Ingelheim
Germany

Telephone : +498007790900

E-mail address of person responsible for the SDS : EHS-Services@Boehringer-Ingelheim.com

1.4 Emergency telephone number

Int. Emergency Telephone number: +1 703-527-3887
German Emergency Telephone number: +49800 1817059

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H332: Harmful if inhaled.

Specific target organ toxicity - repeated exposure, Category 1, Central nervous system	H372: Causes damage to organs through prolonged or repeated exposure.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

H226	Flammable liquid and vapour.
H302 + H332	Harmful if swallowed or if inhaled.
H372	Causes damage to organs (Central nervous system) through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist or vapours.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.

Response:

P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.

Hazardous components which must be listed on the label:

Fipronil

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

The pharmacological effect of the medicament has to be considered (see package leaflet).
This drug is not subject to the labelling requirements under the Globally Harmonized System (GHS)

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Mixture

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Fipronil	120068-37-3 424-610-5 608-055-00-8	Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 STOT RE 1; H372 (Central nervous system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1.000 M-Factor (Chronic aquatic toxicity): 10.000 Acute toxicity esti-mate Acute oral toxicity: 97 mg/kg Acute inhalation tox-icity (dust/mist): 0,39 mg/l Acute dermal toxicity: 354 mg/kg	>= 10 - < 20
ethanol	64-17-5 200-578-6 603-002-00-5 01-2119457610-43-	Flam. Liq. 2; H225 Eye Irrit. 2; H319 specific concentration	>= 10 - < 20

	xxxx	limit Eye Irrit. 2 >= 50 %	

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
First Aid responders should pay attention to self-protection and use the recommended protective clothing
Remove from exposure, lie down.
Take off immediately all contaminated clothing.
Victim to lie down in the recovery position, cover and keep him warm.

If inhaled : Move to fresh air.

In case of skin contact : Wash off immediately with plenty of water.

In case of eye contact : Rinse immediately with plenty of water for at least 15 minutes.
Keep eye wide open while rinsing.

If swallowed : Rinse mouth.
Drink plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Harmful if swallowed or if inhaled.
Causes damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Observe the summary of product characteristics of proprietary medicinal products
Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water mist
Dry chemical
Foam
Carbon dioxide (CO2)

Unsuitable extinguishing : Water spray jet

media

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : In case of fire and/or explosion do not breathe fumes.

Hazardous combustion products : Carbon oxides
Nitrogen oxides (NOx)
Sulphur oxides
Hydrogen chloride gas

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Complete suit protecting against chemicals

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment.
Ensure adequate ventilation.
High risk of slipping due to leakage/spillage of product.
Suppress vapours with waterspray.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Pick up and transfer to properly labelled containers.

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
Breathing must be protected when large quantities are decanted without local exhaust ventilation.
Keep container closed when not in use.

Advice on protection against fire and explosion : Vapours may form explosive mixtures with air.

Hygiene measures : General industrial hygiene practice. Wash hands and face before breaks and immediately after handling the product. Keep working clothes separately.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Refer to the product insert for instructions on storage. Keep tightly closed in a dry and cool place. Keep in a well-ventilated place. Protect from heat and direct sunlight. Jointless smooth floor

Advice on common storage : Keep away from food, drink and animal feedingstuffs. Observe joint storage prohibition.

Storage class (TRGS 510) : 3

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
2,6-di-tert-butyl-p-cresol	128-37-0	MAK (inhalable fraction)	10 mg/m3	Germany. MAK BAT Annex IIa
	Peak-limit: excursion factor (category): 4; II			
	Further information: Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans and for which a MAK value can be derived., Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		AGW (Vapour and aerosols, inhalable fraction)	10 mg/m3	DE TRGS 900
	Peak-limit: excursion factor (category): 4;(II)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
2-(2-ethoxyeth-oxy)ethanol	111-90-0	MAK (inhalable fraction)	50 mg/m3	Germany. MAK BAT Annex IIa
	Peak-limit: excursion factor (category): 2; I			
	Further information: Damage to the embryo or foetus is unlikely when the			

	MAK value or the BAT value is observed			
		AGW (Vapour and aerosols)	6 ppm 35 mg/m3	DE TRGS 900
	Peak-limit: excursion factor (category): 2;(I)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
ethanol	64-17-5	MAK	200 ppm 380 mg/m3	Germany. MAK BAT Annex IIa
	Peak-limit: excursion factor (category): 4; II			
	Further information: Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans and for which a MAK value can be derived, Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed, Germ cell mutagens or suspected substances (according to the definition of Category 3 A and 3B), the potency of which is considered to be so low that, provided the MAK and BAT values are observed, their contribution to genetic risk for man is considered to be very slight			
		AGW	200 ppm 380 mg/m3	DE TRGS 900
	Peak-limit: excursion factor (category): 4;(II)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			

Components	Basis	Category	Values	Remarks
Fipronil 120068-37-3	BIEL BIPC	3B 1b	1 µg/m3	

Abbreviations:
BIEL = Boehringer Ingelheim Exposure Limit (internal value)
BI-STEL = Boehringer Ingelheim Short-Term Exposure Limit (Excursion limit)
BIPC = Boehringer Ingelheim Pregnancy Category
BIPC 1b: No risk of harm to the unborn is to be expected, when the exposure does not exceed the BIEL value. There is evidence in animals and/or humans that this material has the potential to cause harm to the unborn at exposure levels exceeding the BIEL value.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
ethanol	Workers	Dermal	Long-term systemic effects	343 mg/kg
	Workers	Inhalation	Long-term systemic effects	950 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
Fipronil	Fresh water	0,000012 mg/l
	Sediment	0,000030 mg/kg
	Sewage treatment plant	3,35 mg/l
	Soil	0,123 mg/kg

	Water	0,0008 µg/l
	Remarks:BI PNEC	
	Marine sediment	0,000003 mg/kg
ethanol	Fresh water	0,96 mg/l
	Marine water	0,79 mg/l
	Soil	0,63 mg/kg
	Fresh water sediment	3,6 mg/kg
	Sewage treatment plant	580 mg/l
	Intermittent use/release	2,75 mg/l
	Marine sediment	2,9 mg/l

8.2 Exposure controls

Engineering measures

Local exhaust
Emergency sprinkling nozzle
Use only appropriately classified electrical equipment and powered industrial trucks.

Personal protective equipment

Eye/face protection : Safety glasses with side-shields
(Not necessary when using full face mask)

Hand protection
- Material : Nitrile rubber
- Glove thickness : 0,43 mm
- Protective index : Class 6

- Remarks : The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.

Skin and body protection : Laboratory: laboratory coat; Factory: disposable Overall.
Wear as appropriate:
Complete suit protecting against chemicals

Respiratory protection : Breathing apparatus needed only when aerosol or mist is formed.
Respirator with a full face mask
ABEK-P2-filter

Protective measures : Handle in accordance with good industrial hygiene and safety practice.
Avoid contact with skin, eyes and clothing.
Only use protective equipment in accordance with national/international regulations. Follow the national regulations about wearing personal protective equipment and the warranty given by the manufacturer for the safe function.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour	:	light amber
Odour	:	alcohol-like
Odour Threshold	:	No data available
Melting point/ range	:	Not applicable
Boiling point/boiling range	:	172 °C
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	40 °C(1.013 hPa) Method: ISO 3679
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No decomposition if used as directed.
pH	:	5,2
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-	:	No data available

octanol/water

Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	No data available
Bulk density	:	Not applicable
Relative vapour density	:	No data available
Particle characteristics		
Particle size	:	Not applicable

9.2 Other information

Explosives	:	Not tested
Oxidizing properties	:	No data available
Flammability (liquids)	:	No data available
Self-ignition	:	190 °C
Evaporation rate	:	No data available
Miscibility with water	:	forms colloidal solution

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	No data available

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents

10.6 Hazardous decomposition products

No data available

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 970 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: 3,9 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 2.000 mg/kg Method: Calculation method

Components:

Fipronil:

Acute oral toxicity	:	LD50 (Mouse): 95 mg/kg LD50 (Rat): 97 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 0,39 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit, male): 445 mg/kg LD50 (Rabbit, female): 354 mg/kg LD50 (Rat): > 2.000 mg/kg

ethanol:

Acute oral toxicity	:	LD50 (Rat): 10.470 mg/kg Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 116,9 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Skin corrosion/irritation

Not classified due to lack of data.

Components:

Fipronil:

Species	:	Rabbit
Exposure time	:	4 h
Result	:	No skin irritation

ethanol:

Species	:	Rabbit
Exposure time	:	24 h
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Serious eye damage/eye irritation

Not classified due to lack of data.

Components:

Fipronil:

Species	:	Rabbit
Assessment	:	No eye irritation
Result	:	Mildly irritating.

ethanol:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Irritation to eyes, reversing within 21 days

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

Fipronil:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Result	:	Does not cause skin sensitisation.

ethanol:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

The value is given in analogy to the following substances: methanol

Germ cell mutagenicity

Not classified due to lack of data.

Components:

Fipronil:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: =< 500 µg/plate
Metabolic activation: with and without metabolic activation
Result: negative
Remarks: In vitro tests did not show mutagenic effects

Test Type: Chromosomal aberration test
Test system: Human lymphocytes
Concentration: =< 300 µg/ml
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: HGPRT assay
Test system: V79 cells (Chinese hamster)
Concentration: =< 500 µg/ml
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse
Dose: <= 48 mg/kg
Result: negative

ethanol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Test Type: dominant lethal test
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 478
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity

Not classified due to lack of data.

Components:

Fipronil:

Species	:	Rat
Application Route	:	Oral
Exposure time	:	104 weeks
Dose	:	=< 17 mg/kg body weight
Remarks	:	Show carcinogenic effects in animal experiments. Not classified due to data which are conclusive although insufficient for classification.

Species	:	Mouse
Application Route	:	Oral
Exposure time	:	78 weeks
Dose	:	=< 3,6 mg/kg body weight
Remarks	:	Did not show carcinogenic effects in animal experiments.

Reproductive toxicity

Not classified due to lack of data.

Components:

Fipronil:

Effects on fertility : Test Type: Two-generation study
Species: Rat
Application Route: Oral
Dose: 0.25 - 28 mg/kg bw/day
General Toxicity - Parent: NOAEL: 0,25 mg/kg body weight
General Toxicity F1: NOAEL: 2,5 mg/kg body weight
Fertility: NOAEL: 2,5 mg/kg body weight
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Oral
Dose: 1, 4, 20 mg/kg bw/day
General Toxicity Maternal: NOAEL: 4 mg/kg body weight
Developmental Toxicity: NOAEL: 20 mg/kg body weight
Symptoms: No embryo-foetal toxicity
Result: No teratogenic effects

Test Type: Embryo-foetal development

Species: Rabbit
Application Route: Oral
Dose: 0.1, 0.2, 0.5, 1.0 mg/kg bw/day
General Toxicity Maternal: NOAEL: < 0,1 mg/kg body weight
Developmental Toxicity: NOAEL: 1 mg/kg body weight
Symptoms: No embryo-foetal toxicity
Result: No teratogenic effects

STOT - single exposure

Not classified due to lack of data.

Components:

Fipronil:

Remarks	:	Not classified due to data which are conclusive although insufficient for classification.

STOT - repeated exposure

Causes damage to organs (Central nervous system) through prolonged or repeated exposure.

Components:

Fipronil:

Target Organs	:	Central nervous system
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Repeated dose toxicity

Components:

Fipronil:

Species	:	Rat
NOAEL	:	0,33 mg/kg
Application Route	:	Oral
Exposure time	:	13 weeks
Dose	:	0.07 - 24 mg/kg/day

Species	:	Rat
NOAEL	:	0,019 mg/kg
Application Route	:	Oral
Exposure time	:	52 weeks
Dose	:	0.019 - 17 mg/kg/day

Species	:	Mouse
NOAEL	:	0,055 mg/kg
Application Route	:	Oral
Exposure time	:	18 months
Dose	:	0,011 - 3,6 mg/kg/day

ethanol:

Species	:	Rat
NOAEL	:	1,730 mg/kg
LOAEL	:	3.200 mg/kg
Application Route	:	Oral
Method	:	OECD Test Guideline 408

Species	:	Rat
NOAEL	:	> 20 mg/l
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	20 d

Aspiration toxicity

Not classified due to lack of data.

Components:

Fipronil:

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Not classified due to lack of data.

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Components:

Fipronil:

Remarks	:	No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

Fipronil:

Toxicity to fish	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0,034 mg/l Exposure time: 96 h LC50 (Oncorhynchus mykiss (rainbow trout)): 0,248 mg/l Exposure time: 96 h

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0,085 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203

NOEC (Lepomis macrochirus (Bluegill sunfish)): 0,043 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

LC50 (Mysidopsis bahia (opossum shrimp)): 0,00014 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,190 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 0,068 mg/l
End point: Biomass
Exposure time: 96 h

NOEC (Desmodesmus subspicatus (green algae)): >= 0,04 mg/l
End point: Biomass
Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): >= 0,04 mg/l
End point: Growth rate
Exposure time: 72 h

EC50 (Anabaena flos-aquae (cyanobacterium)): > 0,17 mg/l
End point: Growth rate
Exposure time: 120 h

NOEC (Anabaena flos-aquae (cyanobacterium)): 0,17 mg/l
End point: Growth rate
Exposure time: 120 h

EC50 (Selenastrum capricornutum (green algae)): > 0,14 mg/l
End point: Growth rate
Exposure time: 120 h

NOEC (Selenastrum capricornutum (green algae)): 0,14 mg/l
End point: Growth rate
Exposure time: 120 h

M-Factor (Acute aquatic toxicity) : 1.000

Toxicity to microorganisms : NOEC (activated sludge): >= 1.000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity)	:	NOEC: 0,015 mg/l Exposure time: 90 d Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,00012 mg/l Exposure time: 28 d Species: Chironomus riparius (harlequin fly) NOEC: 0,0098 mg/l End point: Immobilization Exposure time: 21 d Species: Daphnia (water flea) Test Type: flow-through test Method: OECD Test Guideline 202 NOEC: 0,000008 mg/l Exposure time: 28 d Species: Mysidopsis bahia (opossum shrimp)
M-Factor (Chronic aquatic toxicity)	:	10.000
Toxicity to soil dwelling organisms	:	Test Type: artificial soil LC50: > 1.000 mg/kg Exposure time: 14 d Species: 'Eisenia foetida' Method: Earthworm, Acute Toxicity Test.
Toxicity to terrestrial organisms	:	LD50: 0,00000417 End point: Acute oral toxicity Species: Apis mellifera (bees)

ethanol:

Toxicity to fish	:	LC50 (Onchorhynchus mykiss): 11.200 mg/l Exposure time: 24 h LC50 (Pimephales promelas (fathead minnow)): 15.300 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 5.012 mg/l Exposure time: 48 h Test Type: static test EC50 (Marine invertebrates): 857 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Chlorella vulgaris): 275 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to microorganisms	:	IC50 (activated sludge): > 1.000 mg/l

Exposure time: 3 h
Test Type: static test
Method: Activated Sludge, Respiration Inhibition Test

Toxicity to fish (Chronic toxicity) : NOEC: 250 mg/l
Species: fish

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 9,6 mg/l
Exposure time: 10 d
Species: Freshwater invertebrates

NOEC: 79 mg/l
Exposure time: 10 d

12.2 Persistence and degradability

Components:

Fipronil:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 47 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in water : Degradation half life (DT50): 61,69 d (12 °C)

ethanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 60 %
Exposure time: 10 d
Method: OECD Test Guideline 301B

Test Type: aerobic
Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 15 d
Method: OECD Test Guideline 301E

12.3 Bioaccumulative potential

Components:

Fipronil:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 321
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 4 (20 °C)

ethanol:

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log

P(o/w)<1).

Partition coefficient: n-octanol/water : log Pow: -0,35

12.4 Mobility in soil

Components:

Fipronil:

Distribution among environmental compartments : Koc: 727 ml/g
Kd: 949 ml/g
Remarks: Moderately mobile in soils

ethanol:

Distribution among environmental compartments : Koc: 0,2

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

Fipronil:

Assessment : Persistent and Toxic

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Components:

Fipronil:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	Dispose of in accordance with local regulations.
Contaminated packaging	:	Packs that cannot be cleaned should be disposed of in the same manner as the contents. Uncontaminated packaging can be recycled.

SECTION 14: Transport information

14.1 UN number or ID number

ADR	:	UN 1993
RID	:	UN 1993
IMDG	:	UN 1993
IATA	:	UN 1993

14.2 UN proper shipping name

ADR	:	FLAMMABLE LIQUID, N.O.S. (Ethanol, Fipronil)
RID	:	FLAMMABLE LIQUID, N.O.S. (Ethanol, Fipronil)
IMDG	:	FLAMMABLE LIQUID, N.O.S. (Ethanol, Fipronil)
IATA	:	Flammable liquid, n.o.s. (Ethanol, Fipronil)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
ADR	:	3	
RID	:	3	
IMDG	:	3	
IATA	:	3	

14.4 Packing group

ADR

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3
Tunnel restriction code	:	(D/E)

RID

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3

IMDG

Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E

IATA (Cargo)

Packing instruction (cargo aircraft)	:	366
Packing instruction (LQ)	:	Y344
Packing group	:	III
Labels	:	Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft)	:	355
Packing instruction (LQ)	:	Y344
Packing group	:	III
Labels	:	Flammable Liquids

14.5 Environmental hazards

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

IATA (Passenger)
Environmentally hazardous : yes

IATA (Cargo)
Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3
REACH - Candidate List of Substances of Very High	:	Number on list 3 Not applicable

Concern for Authorisation (Article 59).

Regulation (EC) on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Fipronil

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P5c	FLAMMABLE LIQUIDS
E1	ENVIRONMENTAL HAZARDS

Water hazard class (Germany) : WGK 3 highly hazardous to water
Classification according to AwSV, Annex 1 (5.2)

TA Luft List (Germany) :
5.2.1: Total dust:
others: 5 % Polyvinyl pyrrolidone
5.2.2: Inorganic substances in powdered form:
Not applicable
5.2.4: Inorganic substances in gaseous form:
Not applicable
5.2.5: Organic Substances:
Class 1: 10,03 % Fipronil, tert-butyl-4-methoxyphenol, 2,6-di-tert-butyl-p-cresol
5.2.7.1.1: Carcinogenic substance:
Not applicable
5.2.7.1.1: Quartz fine dust PM4:
Not applicable
5.2.7.1.1: Formaldehyde:
Not applicable
5.2.7.1.1: fibres:
Not applicable
5.2.7.1.2: Germ cell mutagens:
Not applicable
5.2.7.1.3: Substances toxic to reproduction:
Not applicable
5.2.7.2: Poorly degradable, easily enrichable and highly toxic organic substances:
Not applicable

Volatile organic compounds	:	Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 5 %

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The product is subject to the supply restrictions of the Ordinance on the Prohibition of Chemicals.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	Product contains substance(s) not listed on TSCA inventory.
AIIC	:	Not in compliance with the inventory
DSL	:	This product contains the following components that are not on the Canadian DSL nor NDSL. Fipronil
ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	Not in compliance with the inventory

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16: Other information

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H301	:	Toxic if swallowed.
H311	:	Toxic in contact with skin.
H319	:	Causes serious eye irritation.
H330	:	Fatal if inhaled.
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.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
STOT RE	:	Specific target organ toxicity - repeated exposure
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
DE TRGS 900 / AGW	:	Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI -

Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Sources of key data used to compile the Safety Data Sheet	:	The specifications are based on own tests and/or literature data.

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Acute Tox. 4	H302	Calculation method
Acute Tox. 4	H332	Calculation method
STOT RE 1	H372	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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