www.veto-pharma.com

VARROA
TREATMENT

Apivar®

By Véto-pharma

The easiest, safest, most reliable treatment

The trusted
Amitraz strip

FROM
Véto-pharma
Committed to apiculture

APIVAR®

The original Amitraz strip

Amitraz-based miticide

A UNIQUE AMITRAZ-BASED PRODUCT

Simple and safe composition of two ingredients[1]

Apivar is the only amitraz-based varroa treatment containing only amitraz and the plastic strip.
Comparable products contain additional excipients.

Easy to use
No temperature constraints.[3]

- **1 - Amitraz**

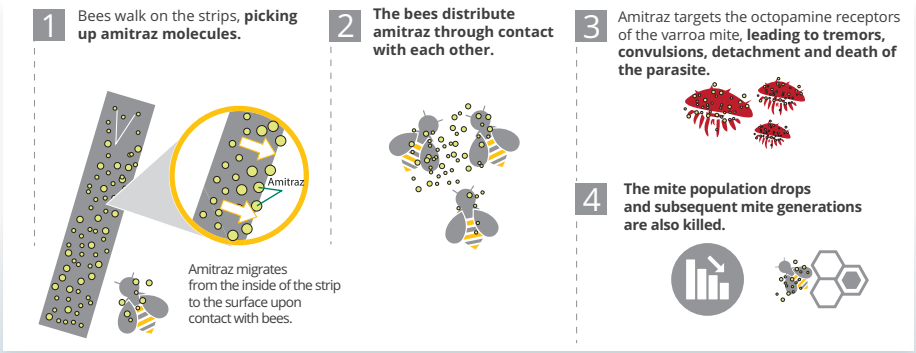
  Amitraz targets the octopamine receptors of the varroa mite, causing excessive stimulation of its octopaminergic synapses, leading to tremors, convulsions, detachment and death of the parasite.[2]

  The amitraz used in the production of Apivar is of **veterinary pharmaceutical quality.**

- **2 - Plastic polymer**

  Specifically designed to ensure a **continuous release of amitraz from the surface of the strip** after its placement in the hive. The polymer strip was chosen for its rigidity and its ability to continuously release the active ingredient during the treatment.

The special manufacturing process results in an even distribution of amitraz within the whole strip, not only on the surface.
As Apivar works by contact, the active ingredient is continuously delivered each time the bees pick up the molecule from the surface.



1, 2 & 3 : https://www3.epa.gov/pesticides/chem_search/ppls/087243-00001-20200224.pdf

A single application, long period of protection

Thanks to its controlled release technology, Apivar releases amitraz reliably over several weeks.

Varroa mites fall throughout the duration of the treatment (6 to 8 weeks)[1]

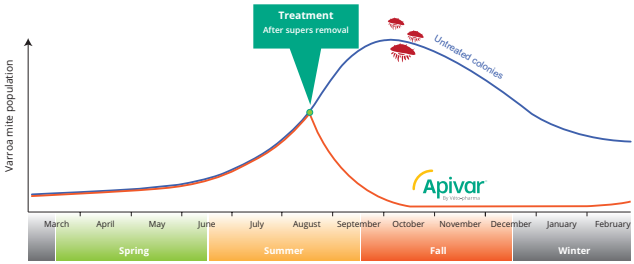
At the end of the treatment, Apivar efficacy is up to 99%.[2]

The plastic polymer of Apivar strips has been developed to continuously release amitraz throughout the treatment duration[1], killing several successive generations of varroa mites.

Therefore, fallen mites at the beginning of an Apivar treatment may be less than during a flash treatment. This is normal and does not mean the treatment is ineffective.

As the opposite graph shows, treatments over several weeks like Apivar helps control the overall colony infestation to lower the varroa mite pressure for longer.

Modeling the Varroa population with an Apivar treatment applied at the end of the season



Long-acting treatments like Apivar kill several successive generations of varroa mites during the treatment period. As a result, the colony remains clean for the long term.

1 - If brood is present, leave the strips in place for 8 weeks (cf. https://www3.epa.gov/pesticides/chem_search/ppls/087243-00001-20200224.pdf)
2 - Testapi - Study report 502-2021 (GLP Study)

APIVAR'S QUALITY AND SAFETY

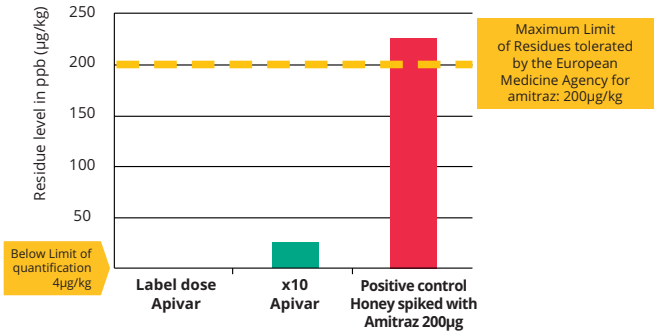
Apivar is a product of Véto-pharma, a French pharmaceutical company that develops and markets innovative products to help beekeepers prevent and control hive diseases and infestations for 25 years.

Apivar is manufactured in a dedicated facility operated to the highest standards in pharmaceutical manufacturing. Each batch is stricly controlled and analyzed before commercialization.

As a result, beekeepers around the globe can be confident that each Apivar strip is consistent, safe for bees and humans, and meets or exceeds stringent pharmaceutical quality standards.

Preserve the quality of honey

Concentration of residues [amitraz + metabolites] in honey[1]



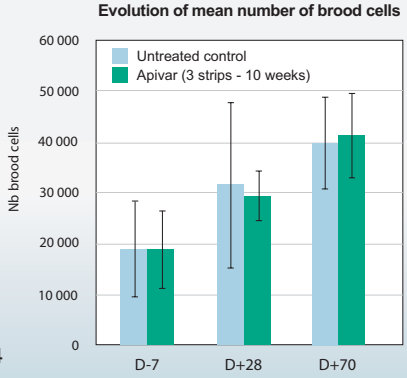
Thanks to its unique composition and its controlled release technology, Apivar guarantees respect for the quality of your honeys.

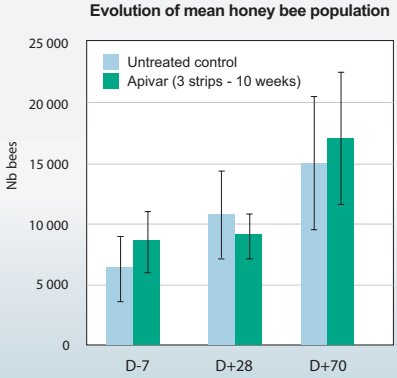
At the recommended dosage, the level of residues of amitraz + metabolites for Apivar is well below the Maximum Residue Limit (MRL) set by the European Medicines Agency.[2]

1 - Veeranan Chaimanee, Josephine Johnson & Jeffery S. Pettis (2021):Determination of amitraz and its metabolites residue in honey and beeswax after Apivar®treatment in honey bee (Apis mellifera) colonies, Journal of Apicultural Research, DOI:10.1080/00218839.2021.1918943
2- Commission Regulation (EU) No 37/2010 of 22 December 2009 on pharmacologically active substances and their classification regarding maximum residue limits in foodstuffs of animal origin

No negative effect on brood or bees

Total population before and after a ten-week treatment with 1.5 times the dosage of Apivar





Reference: Apivar registration dossier (2015). Study 2026-2015 - Testapi

25 YEARS OF RELIABILITY: EFFICACY AND WINTER SURVIVAL

Efficacy

Recent studies were conducted between 2018 and 2021, with efficacy rates above 97%.

These results show a consistent efficacy even after 25 years of use in France, the first country where Apivar was authorised.

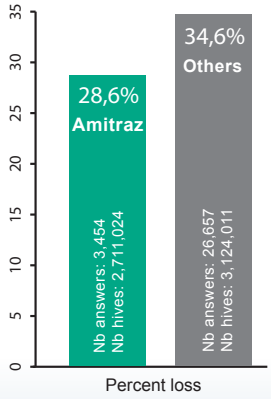
Country	Year	Type and nb of hives	Treatment	Efficacy (%)
France[1]	2021	Dadant Single body 10 hives	Apivar 2 strips 8 weeks	**99,3%**
France[2]	2020	Dadant Single body 10 hives	Apivar 2 strips 8 weeks	**98,1%**
Canada[3]	2019	Lab assay 58 colonies	Lab assay	**99.8%**
Spain[4]	2019	Layens Single body 10 colonies	Apivar 2 strips 6 weeks	**98.4%**
Spain[5]	2018	Layens Single body 7 colonies		**96.9%**

References:

1. *Testapi - Study report 502-2021 (GLP Study)*
2. *Véto-pharma report VTP20RU147*
3. *Olmstead et al. - Apivar® and Bayvarol® suppress varroa mites in honey bee colonies in Canadian Maritime Provinces - J. Acad. Entomol. Soc. 15: 46-49 (2019)*
4. *Ensayo de eficacia Apivar (Campaña 2019) - Pinofranqueado (Cáceres) - EUROMIEL*
5. *Ensayo de eficacia de campo del producto antiparasitario "Oxybee" (2018) - EUROMIEL*

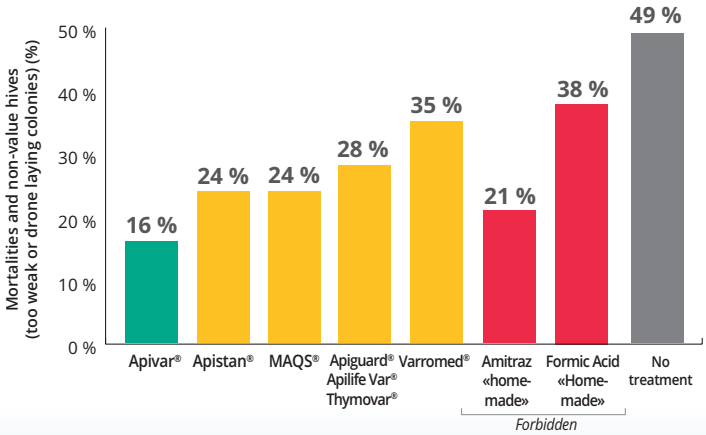
Winter survival with Apivar / amitraz over several years

Average winter loss in the USA for 13 years, depending on the mite treatment used



Survey conducted by the Bee Informed Partnership between 2007 and 2020 in the USA

Average winter loss in France between 2010 and 2020, depending on the mite treatment used



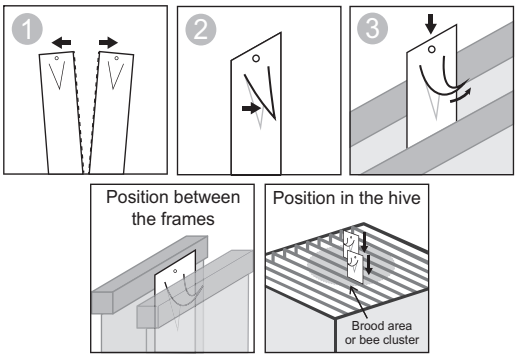
Nb hives	86.527	4.546	6.092	5.262	1.951	8.533	11.150	2.172
Nb beekeepers	3.306	86	195	234	99	31	122	162

Regional study report "Pertes hivernales 2010-2020 en Alsace". Chamber of Agriculture of the Alsace Region Ballis A. – May 2020

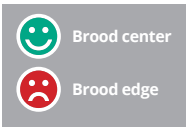
HOW TO USE APIVAR AND INCREASE THE EFFICACY OF YOUR TREATMENT[1]

Remove all honey supers before applying Apivar. Use 2 Apivar strips per brood chamber (i.e., one strip per 5 Frames of Bees - FoB).

1. Separate the double strip.
2. Push the strip's V-shaped die-cut outside.
3. Push each strip between two frames inside the brood area or the bee cluster with a minimum distance of 2 frames between strips. The strips should be placed in such a way that the bees can have free access to both sides.



Alternatively, the strips can be hung by the hole in the V-shaped die-cut, using a small nail or toothpick



FoB	≤ 5	6-10	11-15	16-20
Strips	1	2	3	4

Apivar works by contact!

Always place the strips in the brood center, and adjust the strips at mid-treatment if the cluster has moved. Feeding during treatment can also help to make the bees move inside the hive, and thus increase the contacts.

There is no temperature constraint when using Apivar:

It can be used throughout the season, in any climate, when the supers are not placed on the hives.

Leave strips in the hive between 6 to 8 weeks depending on season and amount of brood.

The larger the brood area is, the longer the strips should be left in the hive.

Do not re-use the strips!

Remove the strips at the end of the treatment. Open packs should be used immediately.

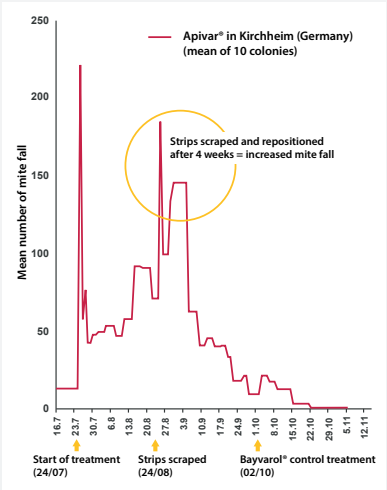
Extra tips: Adding boxes to allow for additional space for movement of bees, without additional Apivar strips, may reduce contact with strips below, and efficacy of Apivar application.

Repositioning and scraping the strips to improve the Apivar efficacy

As shown by the results of a study conducted in Germany in 2018, scraping and repositioning the strips at mid-treatment can considerably boost the daily mite fall. A second peak of falls is observed after 08/24, day of scraping and repositioning.

The systematic scraping at mid-treatment (and possible repositioning, if the bee cluster has moved) increases the number of direct contacts between the bees and the strips, thereby improving the effectiveness of the treatment.

Reference - Bienen&natur (08.2019). Feldtest mit Apivar. PD Dr. Peter Rosenkranz and Thomas Kustermann.



Useful tips to better fight the mite

Integrated Pest management

- ✓ **Regular monitoring of mite infestation throughout the year, beginning in spring** (at least four times a year).
- ✓ **Check your mite infestation BEFORE and AFTER treatment.** This is the only way to know if your treatment was successful. *If you had 10 000 mites in your hive, the treatment could be 97% effective and you will still see a lot of mites after treatment.*
- ✓ **Adapt your treatment strategy depending on your infestation** (do not stick to one treatment a year at the same date).
- ✓ **Stay informed about local infestation thresholds.**
- ✓ **Renew brood comb every 2 or 3 years minimum.**
- ✓ **Treat all colonies in an apiary at the same time** to prevent re-infestation.
- ✓ **Rotate the active ingredients** (and not only the treatment!).
- ✓ **Use only registered treatments and respect the product labels and instructions.**

What is an authorized varroa treatment?

A registered varroa treatment has been approved by the government authority, and has been tested not only for efficacy, but also for its safety for the colony (bees, brood, queen), for the beekeeper and the final consumer of the hive products. Registered treatments have been tested at different concentrations and different applications (variation of the duration, posology, way of application) to find the best use. Please follow all directions on the label and do not overdose to try to reach a higher efficacy. As your production will be part of the human diet (honey, royal jelly, propolis), you must use only authorised treatments in your hives, to guarantee the safety and compliance of the hive products.

MITE MONITORING IS ESSENTIAL

varroa easyCheck By Véto-pharma

3 MONITORING METHODS USING THE ONE TOOL: VARROA EASYCHECK

Alcohol wash | Sugar roll | CO_2 injection

RIP VARROA

This is how we like them!

www.veto-pharma.com
www.blog-veto-pharma.com
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Véto-pharma
Committed to apiculture

APV-12-US-N02-12/21

SAFETY DATA SHEET

According to
HSNO Hazardous Substances (Safety Data Sheets) Notice 2017

Section 1. Identification of the material and the supplier

Product Name:	APIVAR strips for the in-hive control of mites on honey bees
Product Use:	Veterinary Pesticide for industrial and consumer use.
Restriction of Use:	For use as a veterinary medicine only
New Zealand Supplier: Address:	New Zealand Beeswax Ltd 44 Gladstone Street Sth, RD 22 Geraldine 7992
Emergency Telephone:	**0800 764 766 (National Poison Centre)**
Date of SDS Preparation:	15 May 2023

Section 2. Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval No: HSR000799

Pictograms:

Signal Word: **Warning**

GHS Classification and Category	Hazard Code	Hazard Statement
Skin sensitisation Cat. 1	H317	May cause an allergic skin reaction.
Hazardous to the aquatic environment acute/chronic Cat. 1	H400 / 410	Very toxic to aquatic life with long lasting effects.

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use.
P261	Avoid breathing dusts.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective clothing as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Storage Code	**Storage Statement**
None allocated	

Disposal Code	**Disposal Statement**
P501	Dispose of according to Local Regulations or Authorities.

Section 3. Composition / Information on Hazardous Ingredients

Ingredients	Wt%	CAS NUMBER.
N,N-bis(2,4-xylyliminomethyl) methylamine	1-<5	33089-61-1
vinyl acetate	<1	108-05-4
Non hazardous	To balance	

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes — Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Seek medical advice if needed.

If on Skin — Brush off loose particles from skin. Wash contaminated clothing before reuse. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

If Swallowed — Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Seek medical advice if needed.

If Inhaled — If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Most important symptoms and effects, both acute and delayed

Symptoms:
Skin: May cause an allergic skin reaction.
Inhalation: Not applicable.
Skin contact: Not applicable.
Eye irritation: Not applicable.

Notes for First Aid Measure:

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable, non-combustible liquid. Deposited combustible dust has considerable explosion potential.
Hazardous Combustion	nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO2).
Suitable Extinguishing media	Water, foam, alcohol resistant foam, ABC-powder. Do not use water.
Precautions for firefighters and	In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting

special protective clothing	water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.
HAZCHEM CODE	**2Z**

Section 6. Accidental Release Measures

Clear the area of all unprotected personnel. Wear appropriate protective clothing (see Section 8, Personal Protection).

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose it.
Take up mechanically. Collect spillage (sawdust, kieselgur (diatomite), sand, universal binder). Place in appropriate containers for disposal. Ventilate affected area.
Dispose of according to Local Regulations.

Section 7. Handling and Storage

Precautions for Handling:

- Keep out of reach of children.
- Read label before use.
- Avoid breathing dusts.
- Contaminated work clothing should not be allowed out of the workplace.
- Use local and general ventilation.
- Take precautionary measures against static discharge.
- Ground/bond container and receiving equipment.
- Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.
- Avoid release to the environment.
- Wear protective clothing as detailed in Section 8.

Advice on general occupational hygiene
Wash hands after use. Do not to eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feeding stuffs.

Precautions for Storage:

- Store away from any incompatible materials listed in Section 10.
- Packaging compatibilities Resistant packaging's, approved packaging type (e.g. acc. to ADR) are recommended.
- Use local and general ventilation.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	**TWA ppm**	**TWA mg/m³**	**STEL ppm**	**STEL mg/m³**
Vinyl acetate [108-05-4]	10	35	20	70

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices APRIL 2022 13TH EDITION.

DNELs of components of the mixture

Name of sub-stance	CAS No	End-point	Threshold level	Protection goal, route of expos-ure	Used in	Exposure time
vinyl acetate	108-05-4	DNEL	35.2 mg/m^3	human, inhalatory	worker (industry)	acute - local effects
vinyl acetate	108-05-4	DNEL	35.2 mg/m^3	human, inhalatory	worker (industry)	acute - systemic effects
vinyl acetate	108-05-4	DNEL	17.6 mg/m^3	human, inhalatory	worker (industry)	chronic - local effects
vinyl acetate	108-05-4	DNEL	0.42 mg/kg	human, dermal	worker (industry)	chronic - systemic effects
vinyl acetate	108-05-4	DNEL	17.6 mg/m^3	human, inhalatory	worker (industry)	chronic - systemic effects

PNECs of components of the mixture

Name of sub-stance	CAS No	End-point	Threshold level	Organism	Environ-mental com-	Exposure time
vinyl acetate	108-05-4	PNEC	0.016 mg/l	aquatic organisms	freshwater	short-term (single
vinyl acetate	108-05-4	PNEC	0.0016 mg/l	aquatic organisms	marine water	short-term (single instance)
vinyl acetate	108-05-4	PNEC	6 mg/l	aquatic organisms	sewage treatment plant	short-term (single instance)
vinyl acetate	108-05-4	PNEC	0.067 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
vinyl acetate	108-05-4	PNEC	0.0067 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
vinyl acetate	108-05-4	PNEC	0.0035 mg/kg	terrestrial organisms	soil	short-term (single instance)
vinyl acetate	108-05-4	PNEC	0.126 mg/l	aquatic organisms	water	continuous

Engineering Controls

General ventilation.

Personal Protective Equipment

Eyes	Wear eye/face protection.
Skin	Wear protective gloves. Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling
Respiratory	Particulate filter device (EN 143).
Environmental	Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

Section 9 Physical and Chemical Properties

Appearance	Solid
Container	Translucent
Odour	Characteristic
Odour Threshold	Not available
pH	Not available
Boiling Point	Not available
Melting Point	Not available
Freezing Point	Not available
Flash Point	Not available
Flammability	Not available
Upper and Lower Explosive Limits	Not available
Vapour Pressure	Not available
Vapour Density	Not available
Specific Gravity	Not available

Solubility in water and solvents (mg/l)	Not available
Rainfastness	Not available
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Kinematic Viscosity	Not available
Particle Characteristics	Not available
Molecular weight	Not available

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions of use and storage.
Conditions to Avoid	There are no specific conditions known which have to be avoided. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.
Incompatible Materials	None known.
Hazardous Decomposition Products	Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Combustion Products: nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO2).

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable
Dermal	Not applicable
Inhalation	Not applicable
Eye	Not applicable
Skin	May cause an allergic skin reaction.

Chronic Effects:

Carcinogenicity	Not applicable
Reproductive Toxicity	Not applicable
Germ Cell Mutagenicity	Not applicable
Aspiration	Not applicable
STOT/SE	Not applicable
STOT/RE	Not applicable
Other	Not applicable

Substance information:
Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	ATE
N,N-bis(2,4-xylyliminomethyl) methylamine	33089-61-1	oral	500
vinyl acetate	108-05-4	inhalation: vapour	11

Section 12. Ecotoxicological Information

Very toxic to aquatic life with long lasting effects.

Persistence and degradability	No data available
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	No data available

Substance information:
Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
vinyl acetate	108-05-4	EC50	12.6 mg/l	aquatic invertebrates	48 hours
vinyl acetate	108-05-4	ErC50	12.7 mg/l	algae	72 hours

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
vinyl acetate	108-05-4	EC50	24 mg/l	aquatic invertebrates	24 h

Section 13. Disposal Considerations

Disposal Methods:
Any unused veterinary medicinal product or waste material derived from such veterinary medicinal products should be disposed of in accordance with national requirements.

Methods to avoid and Precautions:
Do not empty into drains. Avoid release to the environment.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ ; NZS 5433:2020

Road, Rail, Sea and Air Transport

UN No	3077
Class - Primary	9
Packing Group	III
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Marine Pollutant	Yes
Special Provisions	If the product's individual container is below 5kg, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Section 15 Regulatory Information

EPA Approval Code: HSR000799

HSW (HS) Regulations 2017 and EPA Notices	Trigger Quantity
Certified Handler	Not required
Location Certificate	Not required
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	100kg

Emergency Response Plan	1000kg
Secondary Containment	1000kg
Restriction of Use	Only use for the intended purpose.
ACVM Act and Regulations	
ACVM Act 1997: Approval No	P05702

Section 16 Other Information

Glossary

Cat	Category
EC_{50}	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC_{50}	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD_{50}	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices April 2022 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

The information herein is given in good faith, but no warranty, express or implied is made.

Please contact the New Zealand distributor, if further information is required.

Issue Date: 15 May 2023 Review Date: 15 May 2028