SAFETY DATA SHEET

DANADIM PROGRESS

Version	Revision Date:	SDS Number:	Date of last issue: -
2.0	08.06.2022	50000650	Date of first issue: 08.06.2022

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

1.1 Product identifier

Product name DANADIM PROGRESS

Other means of identification

Product code 50000650

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

Use of the Substance/Mixture : Can be used as insecticide only.

Recommended restrictions on use : Use as recommended by the label.

1.3 Details of the supplier of the safety data sheet

Supplier Address

FMC CHEMICALS (PTY) LTD
COMPANY REGISTRATION NUMBER: 1988/001451/07
WEST END OFFICE PARK, BUILDING C
CNR. WEST AVE & HALL STREET
CENTURION, 0014

E-mail address: SDS-Info@fmc.com (E-Mail General Information)

1.4 Emergency telephone

For leak, fire, spill or accident emergencies, call:
South Africa: 0-800-983-611 (CHEMTREC)

Medical emergency:
For any emergency or poisoning contact: Griffon Poison Information Centre (24 hrs) - +27-(0)-82-446-8946

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 vapor.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 4	H332: Harmful if inhaled.

Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitization, Sub-category 1B	H317: May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal Word : Warning

Hazard Statements :

H226 Flammable liquid and vapor.
H302 + H332 Harmful if swallowed or if inhaled.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs 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 vapors.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

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

Hazardous ingredients which must be listed on the label:

cyclohexanone
dimethoate (ISO)
Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics
maleic anhydride

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
cyclohexanone	108-94-1 203-631-1 606-010-00-7	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Dam. 1; H318	>= 30 - < 50
dimethoate (ISO)	60-51-5 200-480-3 015-051-00-4	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1	>= 30 - < 50
Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics	128601-23-0	Flam. Liq. 3; H226 STOT SE 3; H335 (Respiratory system) STOT SE 3; H336 (Central nervous system) Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 2.5 - < 10
alkoxylated short fatty alcohol	Not Assigned	Aquatic Chronic 3; H412	>= 2.5 - < 10
maleic anhydride	108-31-6 203-571-6 607-096-00-9 01-2119472428-31-0132	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1A; H317 STOT RE 1; H372 (Inhalation, Respiratory system)	>= 0.1 - < 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

Protection of first-aiders : Avoid inhalation, ingestion and contact with skin and eyes.

If inhaled : Call a physician or poison control center immediately.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Harmful if swallowed or if inhaled.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Dry chemical, CO2, water spray or regular foam.

Unsuitable extinguishing media : Do not spread spilled material with high-pressure water streams.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire : Do not allow run-off from fire fighting to enter drains or water

fighting		courses.
Hazardous combustion products	:	Thermal decomposition can lead to release of irritating gases and vapors. phosphorus oxides Nitrogen oxides (NOx) Carbon oxides Sulfur oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters	:	Firefighters should wear protective clothing and self-contained breathing apparatus.
Specific extinguishing methods	:	Remove undamaged containers from fire area if it is safe to do so. Use a water spray to cool fully closed containers.
Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. 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. For safety reasons in case of fire, cans should be stored separately in closed containments.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Never return spills in original containers for re-use. Collect as much of the spill as possible with a suitable absorbent material. Pick up and transfer to properly labeled containers.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection. Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.
Hygiene measures	:	General industrial hygiene practice. Avoid contact with skin, eyes and clothing. Do not inhale aerosol. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Advice on common storage	:	Do not store near acids.
Further information on storage stability	:	Maximum storage temperature: 25°C

7.3 Specific end use(s)

Specific use(s)	:	The product is an approved pesticide and can only be used for the purposes for which it is approved, according to the condi-

tions contained in the label approved by the competent authorities.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
cyclohexanone	108-94-1	OEL-RL	40 ppm	ZA OEL
Further information	Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents, danger of cutaneous absorption			
		OEL- RL STEL/C	100 ppm	ZA OEL
Further information	Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents, danger of cutaneous absorption			
		TWA	10 ppm 40.8 mg/m3	2000/39/EC
		STEL	20 ppm 81.6 mg/m3	2000/39/EC
maleic anhydride	108-31-6	OEL-RL (inhalable fraction and vapour)	0.02 mg/m3	ZA OEL
Further information	respiratory sensitisation, potential to produce respiratory sensitisation, dermal sensitisation, potential to produce dermal sensitisation, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents			

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
cyclohexanone	108-94-1	1,2-Cyclohexanediol: 80 mg/l (Urine)	End of shift at end of workweek	ZA BEI
		Cyclohexanol: 8 mg/l (Urine)	End of shift	ZA BEI

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

Substance name	End Use	Routes of exposure	Potential health effects	Value
cyclohexanone	Workers	Inhalation	Long-term systemic effects	40 mg/m3
	Workers	Inhalation	Acute systemic effects	80 mg/m3
	Workers	Inhalation	Long-term local effects	40 mg/m3
	Workers	Inhalation	Acute local effects	80 mg/m3
	Workers	Dermal	Long-term systemic effects	4 mg/kg
	Workers	Dermal	Acute systemic effects	4 mg/kg
	Consumers	Inhalation	Long-term systemic effects	10 mg/m3

	Consumers	Inhalation	Acute systemic effects	20 mg/m3
	Consumers	Inhalation	Long-term local effects	20 mg/m3
	Consumers	Inhalation	Acute local effects	40 mg/m3
	Consumers	Dermal	Long-term systemic effects	1 mg/kg
	Consumers	Dermal	Acute systemic effects	1 mg/kg
	Consumers	Oral	Long-term systemic effects	1.5 mg/kg
	Consumers	Oral	Acute systemic effects	1.5 mg/kg
Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics	Workers	Inhalation	Long-term systemic effects	150 mg/m3
	Workers	Dermal	Long-term systemic effects	25 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	32 mg/m3
	Consumers	Dermal	Long-term systemic effects	11 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	11 mg/kg bw/day
maleic anhydride	Workers	Inhalation	Long-term systemic effects	0.190 mg/m3
	Workers	Inhalation	Acute systemic effects	0.800 mg/m3
	Workers	Inhalation	Long-term local effects	0.320 mg/m3
	Workers	Dermal	Long-term systemic effects	0.200 mg/kg bw/day
	Workers	Dermal	Acute systemic effects	0.200 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.050 mg/m3
	Consumers	Inhalation	Long-term local effects	0.080 mg/m3
	Consumers	Dermal	Long-term systemic effects	0.100 mg/kg bw/day
	Consumers	Dermal	Acute systemic effects	0.100 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0.060 mg/kg bw/day
	Consumers	Oral	Acute systemic effects	0.100 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
cyclohexanone	Fresh water	0.033 mg/l
	Intermittent use (freshwater)	0.329 mg/l
	Sea water	0.003 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0.249 mg/kg dry

		weight (d.w.)
	Sea sediment	0.025 mg/kg dry weight (d.w.)
	Soil	0.03 mg/kg dry weight (d.w.)
dimethoate (ISO)	Fresh water	0.0008 mg/l
maleic anhydride	Fresh water	0.075 - 0.100 mg/l
	Sea water	0.0075 - 0.010 mg/l
	Intermittent use (freshwater)	0.4281 - 0.750 mg/l
	Sewage treatment plant	4.46 - 44.6 mg/l
	Fresh water sediment	0.060 - 0.334 mg/kg
	Sea sediment	0.006 - 0.0334 mg/kg
	Soil	0.010 - 0.0415 mg/kg
	Oral	6.67 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Material : Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

Protective measures : Plan first aid action before beginning work with this product.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid

Color : blue

Odor : aromatic

Odor Threshold	:	No data available
pH	:	3.14 (25 °C) Concentration: 10 g/l
Melting point/range	:	< 0 °C
Boiling point/boiling range	:	No data available
Flash point	:	48 °C Method: closed cup
Evaporation rate	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	1,060 g/l (20 °C)
Solubility(ies)		
Water solubility	:	emulsifiable
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	6.4 mPa.s (20 °C)
		4 mPa.s (40 °C)
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	Non-oxidizing

9.2 Other information

Flammability (liquids)	:	Sustains combustion
Surface tension	:	42.1 mN/m, 20 °C
Molecular weight	:	Not applicable

Self-ignition : 310 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

Vapors may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Temperatures greater than recommended storage temperature (25°C).

Avoid formation of aerosol.

Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Avoid strong acids, bases, and oxidizers.

Metals

10.6 Hazardous decomposition products

Stable under recommended storage conditions.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

Acute oral toxicity : LD50 (Rat): 550 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50 (Rat): ca. 3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Based on data from a similar product.

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402

Assessment: The component/mixture is minimally toxic after single contact with skin.

Components:

cyclohexanone:

Acute oral toxicity : LD50 (Rat): 1,890 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 6.2 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The component/mixture is moderately toxic after short term inhalation.

dimethoate (ISO):

Acute oral toxicity : Acute toxicity estimate: 500.0 mg/kg
Method: Converted acute toxicity point estimate

LD50 (Rat): 387 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50 (Rat): ca. 1.6 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg
Method: Converted acute toxicity point estimate

LD50 (Rat): > 2,000 mg/kg

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Acute oral toxicity : LD50 (Rat, female): 3,492 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 6.193 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 3,160 mg/kg

alkoxylated short fatty alcohol:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

maleic anhydride:

Acute oral toxicity : LD50 (Rat, male and female): 1,090 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit, female): 2,620 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Species	:	Rabbit
Assessment	:	No skin irritation
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
Remarks	:	May cause skin irritation and/or dermatitis.

Components:

cyclohexanone:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Skin irritation
Remarks	:	Extremely corrosive and destructive to tissue.

dimethoate (ISO):

Method	:	FIFRA 81.05
Result	:	slight irritation

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation
Assessment	:	Repeated exposure may cause skin dryness or cracking.

maleic anhydride:

Species	:	Rabbit
Exposure time	:	4 h
Result	:	Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Species	:	Rabbit
Assessment	:	Irritating to eyes.
Method	:	OECD Test Guideline 405
Result	:	Irritation to eyes, reversing within 21 days
Remarks	:	May cause irreversible eye damage.

Components:

cyclohexanone:

Method	:	Hen egg chorioallantoic membrane bioassay

Result : Irreversible effects on the eye

Remarks : May cause irreversible eye damage.

dimethoate (ISO):

Species : Rabbit
Result : slight irritation

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Species : Rabbit
Result : No eye irritation

maleic anhydride:

Species : Rabbit
Result : Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Product:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : The product is a skin sensitizer, sub-category 1B.

Remarks : Causes sensitization.

Components:

dimethoate (ISO):

Method : OECD Test Guideline 429
Result : Does not cause skin sensitization.

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Test Type : Maximization Test
Species : Guinea pig
Method : OECD Test Guideline 406

alkoxylated short fatty alcohol:

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

maleic anhydride:

Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Dermal
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	May cause sensitization by skin contact.
Routes of exposure	:	Inhalation
Species	:	Rat
Result	:	May cause sensitization by inhalation.

Germ cell mutagenicity

Not classified based on available information.

Components:

cyclohexanone:

Genotoxicity in vitro	:	Test Type: in vitro DNA damage and/or repair study Test system: human diploid fibroblasts Method: OECD Test Guideline 482 Result: negative Test Type: reverse mutation assay Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: chromosome aberration assay Species: Rat (male and female) Application Route: inhalation (vapor) Method: OECD Test Guideline 475 Result: negative Test Type: dominant lethal test Species: Rat (male and female) Application Route: inhalation (vapor) Method: OECD Test Guideline 478 Result: negative Species: Drosophila melanogaster (vinegar fly) (male and female) Application Route: Inhalation Method: OECD Test Guideline 477 Result: negative
Germ cell mutagenicity- Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

dimethoate (ISO):

Genotoxicity in vivo	:	Method: OECD Test Guideline 478 Result: negative

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Genotoxicity in vitro	:	Test Type: reverse mutation assay Metabolic activation: with and without metabolic activation Result: negative
Genotoxicity in vivo	:	Test Type: Bone marrow chromosome aberration Species: Rat Result: negative

maleic anhydride:

Genotoxicity in vitro	:	Test Type: reverse mutation assay Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative Remarks: Based on data from similar materials
Genotoxicity in vivo	:	Test Type: Bone marrow chromosome aberration Species: Rat (male and female) Application Route: Inhalation Method: OECD Test Guideline 475 Result: negative
Germ cell mutagenicity- Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Not classified based on available information.

Components:

cyclohexanone:

Species	:	Rat
Application Route	:	Oral
Exposure time	:	104 weeks
Dose	:	(462 and 910 mg/kg/d
LOAEL	:	3,300 ppm
Result	:	positive
Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen

dimethoate (ISO):

Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen

maleic anhydride:

Species	:	Rat, male and female
Application Route	:	Oral
Exposure time	:	2 Years

Dose	:	0, 10, 32, 100 mg/kg body weight
NOEL	:	10 mg/kg body weight
Method	:	OECD Test Guideline 451
Result	:	negative
Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen

Reproductive toxicity

Not classified based on available information.

Components:

cyclohexanone:

Effects on fertility	:	Test Type: Two-generation study Species: Rat Application Route: inhalation (vapor) Dose: 1.02, 2.04, 4.1 mg/l General Toxicity Parent: NOAEC: 4.1 mg/l General Toxicity F1: NOAEC: 2.04 mg/l General Toxicity F2: NOAEC: 2.04 mg/l Result: negative
Effects on fetal development	:	Species: Rabbit Application Route: Oral Dose: 50, 250, 500 mg/kg b.w. General Toxicity Maternal: NOAEL: 250 mg/kg body weight Teratogenicity: NOAEL: 500 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects.
Reproductive toxicity - Assessment	:	Animal testing did not show any effects on fertility.

dimethoate (ISO):

Reproductive toxicity - Assessment	:	Animal testing showed no reproductive toxicity.

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Effects on fertility	:	Test Type: Three-generation study Species: Rat Application Route: Inhalation Result: negative
Effects on fetal development	:	Test Type: Pre-natal Species: Rat Application Route: inhalation (vapor) Method: OECD Test Guideline 414 Result: negative Remarks: Based on data from similar materials

maleic anhydride:

Effects on fertility	:	Test Type: Two-generation study Species: Rat, male and female Application Route: Oral Dose: 0, 20, 55, and 150 milligram per kilogram General Toxicity Parent: LOAEL: 20 mg/kg body weight Fertility: NOEL: 55 mg/kg body weight Method: OECD Test Guideline 416 Result: negative
Effects on fetal development	:	Species: Rat Application Route: Oral Duration of Single Treatment: 15 d General Toxicity Maternal: NOAEL: >= 140 mg/kg body weight Teratogenicity: NOAEL: >= 140 mg/kg body weight Embryo-fetal toxicity.: NOAEL: >= 140 mg/kg body weight Method: OECD Test Guideline 414 Result: negative
Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

STOT-single exposure

May cause drowsiness or dizziness.

Product:

Assessment	:	May cause drowsiness or dizziness.

Components:

dimethoate (ISO):

Remarks	:	No significant adverse effects were reported

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Assessment	:	May cause respiratory irritation., May cause drowsiness or dizziness.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Product:

Assessment	:	May cause damage to organs through prolonged or repeated exposure.

Components:

cyclohexanone:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

maleic anhydride:

Routes of exposure	:	inhalation (dust/mist/fume)

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

Repeated dose toxicity

Components:

cyclohexanone:

Species	:	Rat, male and female
NOAEL	:	143 mg/kg
Application Route	:	Oral
Exposure time	:	90 d
Dose	:	40, 143 and 407 mg/kg b.w.
Method	:	OECD Test Guideline 408

dimethoate (ISO):

Species	:	Rat
LOAEL	:	2.5 mg/kg bw/day
Exposure time	:	90 days
Symptoms	:	cholinesterase inhibition

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Species	:	Rat, males
NOAEC	:	1.8 mg/l
Application Route	:	inhalation (vapor)
Exposure time	:	12 months
Remarks	:	Based on data from similar materials

maleic anhydride:

Species	:	Dog, male and female
NOAEL	:	60 mg/kg
Application Route	:	Oral
Exposure time	:	90 d
Dose	:	0, 20, 40, or 60 mg/kg bw/day
Method	:	OECD Test Guideline 409

Species	:	Rat, male and female
NOEL	:	10 mg/kg
Application Route	:	Oral
Exposure time	:	2 years
Dose	:	0, 10, 32, and 100 mg/kg bw
Method	:	OECD Test Guideline 452

Species	:	Rat, male and female
LOAEC	:	0.0011 mg/l
Application Route	:	Inhalation
Exposure time	:	6 months
Target Organs	:	Respiratory system

Aspiration toxicity

Not classified based on available information.

Components:

dimethoate (ISO):

The substance does not have properties associated with aspiration hazard potential.

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks	:	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 8.9 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	IC50 (Pseudokirchneriella subcapitata (green algae)): 246 mg/l Exposure time: 72 h
Toxicity to terrestrial organ-isms	:	LC50: 0.37 µg/bee Exposure time: 48 h End point: Acute contact toxicity Species: Apis mellifera (bees) LC50: 0.29 µg/bee Exposure time: 48 h End point: Acute oral toxicity Species: Apis mellifera (bees)

Components:

cyclohexanone:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 527 - 732 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h

Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

dimethoate (ISO):

Toxicity to fish : LC50 (Salmo gairdneri): 30.2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : IC50 (Selenastrum capricornutum (green algae)): 90.4 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC: 0.4 mg/l
Exposure time: 21 d
Species: Salmo gairdneri

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.04 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to soil dwelling organisms : LC50:
31 mg/kg dry weight (d.w.)
Exposure time: 14 d
Species: Eisenia fetida (earthworms)

Toxicity to terrestrial organisms : LD50: 42 mg/kg
Species: Anas platyrhynchos (Mallard duck)

LD50: 10.5 mg/kg
Species: Colinus virginianus (Bobwhite quail)

LD50: 84 mg/kg
Species: Coturnix japonica (Japanese quail)

LD50: 14.1 mg/kg
Species: Phasianus colchicus (ring-necked pheasant)

LD50: 0.12 µg/bee
Species: Apis mellifera (bees)
Remarks: Contact

LD50: 0.15 µg/bee
Species: Apis mellifera (bees)
Remarks: Oral

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): 9.2 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: water accommodated fractions (WAF)
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 3.2 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	NOELR (Pseudokirchneriella subcapitata (green algae)): 0.22 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 EL50 (Pseudokirchneriella subcapitata (green algae)): 7.9 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): > 99 mg/l Exposure time: 10 min Method: OECD Test Guideline 209

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic to aquatic life.
Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

alkoxylated short fatty alcohol:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202

maleic anhydride:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 42.81 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants	:	EC10 (Pseudokirchneriella subcapitata (green algae)): 11.8 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials EC50 (Pseudokirchneriella subcapitata (green algae)): 74.35 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC10 (Pseudomonas putida): 44.6 mg/l Exposure time: 18 h Method: DIN 38 412 Part 8
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 10 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

Components:

cyclohexanone:

Biodegradability	:	Result: Readily biodegradable. Method: OECD Test Guideline 301F

dimethoate (ISO):

Biodegradability	:	Result: Biodegradable

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 78 % Exposure time: 28 d Method: OECD Test Guideline 301F

alkoxylated short fatty alcohol:

Biodegradability	:	Result: Not readily biodegradable.

maleic anhydride:

Biodegradability	:	Inoculum: activated sludge, non-adapted Result: Readily biodegradable. Biodegradation: > 90 % Exposure time: 25 d Method: OECD Test Guideline 301B Remarks: Based on data from similar materials

12.3 Bioaccumulative potential

Components:

cyclohexanone:

Partition coefficient: n-octanol/water	:	log Pow: 0.86 (25 °C)

dimethoate (ISO):

Bioaccumulation	:	Species: Salmo gairdneri Bioconcentration factor (BCF): > 1,000 Remarks: Does not bioaccumulate. See section 9 for octanol-water partition coefficient.
Partition coefficient: n-octanol/water	:	log Pow: 0.704

Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics:

Partition coefficient: n-octanol/water	:	log Pow: 2.92 - 3.59 Method: QSAR

maleic anhydride:

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water	:	log Pow: -2.61

12.4 Mobility in soil

Components:

dimethoate (ISO):

Distribution among environmental compartments	:	Remarks: Highly mobile in soils

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.

12.6 Other adverse effects

Product:

Endocrine disrupting potential	:	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.

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Components:

cyclohexanone:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

14.1 UN number

IMDG : UN 1993

IATA : UN 1993

14.2 UN proper shipping name

IMDG : FLAMMABLE LIQUID, N.O.S. (Cyclohexanone, Naptha Aromatic, Dimethoate)

IATA : Flammable liquid, n.o.s. (Cyclohexanone, Naptha Aromatic, Dimethoate)

14.3 Transport hazard class(es)

IMDG : 3

IATA : 3

14.4 Packing group

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

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 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

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

TCSI	:	Not 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. alkoxylated short fatty alcohol Alkoxylated surfactant Aromatic hydrocarbons, C9; Alkylbenzenes; C9-aromatics O,O-DIMETHYL S-METHYLCARBAMOYLMETHYL PHOSPHORODITHIOATE

ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	Not 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
TECI	:	Not in compliance with the inventory

15.2 Chemical Safety Assessment

SECTION 16: Other information

Full text of H-Statements

H226	:	Flammable liquid and vapor.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H312	:	Harmful in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H332	:	Harmful if inhaled.
H334	:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H372	:	Causes damage to organs through prolonged or repeated exposure.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Dam.	:	Serious eye damage
Flam. Liq.	:	Flammable liquids
Resp. Sens.	:	Respiratory sensitization
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitization
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

ZA BEI	:	South Africa. The Regulations for Hazardous Chemical Agents, Biological Exposure Indices
ZA OEL	:	South Africa. The Regulations for Hazardous Chemical Agents, Occupational Exposure Limits
2000/39/EC / TWA	:	Limit Value - eight hours
2000/39/EC / STEL	:	Short term exposure limit
ZA OEL / OEL-RL	:	Occupational Exposure Limit Restricted limit - 8- hour exposure or equivalent (12 hour shifts)
ZA OEL / OEL- RL STEL/C	:	Occupational Exposure Limit Restricted limit - Short term occupational exposure limits / ceiling limits

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; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Other information :

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Acute Tox. 4	H302	Based on product data or assessment
Acute Tox. 4	H332	Based on product data or assessment
Eye Irrit. 2	H319	Based on product data or assessment
Skin Sens. 1B	H317	Based on product data or assessment
STOT SE 3	H336	Based on product data or assessment

STOT RE 2	H373	Based on product data or assessment
Aquatic Chronic 1	H410	Calculation method

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