

SAFETY DATA SHEET



LANNATE 20 L

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	14.09.2023	800080000353	Date of first issue: 14.09.2023

Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of Georgia and may not meet the regulatory requirements in other countries.

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name : LANNATE 20 L

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : Corteva Agriscience International S.a.r.l.
Route de Suisse 160
CH-1290 Versoix
Switzerland

E-mail address : SDS@corteva.com

Emergency telephone number : +32 3 575 55 55

Recommended use of the chemical and restrictions on use

Recommended use : Insecticide

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 4

Serious eye damage : Category 1

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

GHS-Labeling

Hazard pictograms :

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Signal word : Danger

Hazard statements :
H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :
Prevention:
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Components

Chemical name	CAS-No.	Classification	MAC value mg/m ³ / TSEL value	Concentration (% w/w)
Dimethyl glutarate	1119-40-0	Aquatic Acute ₃ ; H402	No data available	>= 20 - < 25
ethanol	64-17-5	Flam. Liq. ₂ ; H225 Eye Irrit. _{2A} ; H319	MPC-TWA: 1.000 mg/m ³ Class 4 - Low hazard	>= 20 - < 25

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			Data Source: RU OEL MPC-STEL: 2.000 mg/m ³ Class 4 - Low hazard Data Source: RU OEL	
methomyl (ISO)	16752-77-5	Acute Tox.2; H300 Acute Tox.2; H330 STOT SE3; H336 (Central nervous system) Aquatic Acute1; H400 Aquatic Chronic1; H410	No data available	19,34
Dimethyl Succinate	106-65-0		MPC-STEL: 10 mg/m ³ Class 3 - Moder- ately dangerous, Substances which require special skin and eye protection Data Source: RU OEL	>= 3 - < 10
Dimethyl adipate	627-93-0	Aquatic Acute3; H402	MPC-STEL: 10 mg/m ³ Class 3 - Moder- ately dangerous, Substances which require special skin and eye protection Data Source: RU OEL	>= 3 - < 10
methanol	67-56-1	Flam. Liq.2; H225 Acute Tox.3; H301 Acute Tox.3; H331 Acute Tox.3; H311 STOT SE1; H370	MPC-TWA: 5 mg/m ³ Class 3 - Moder- ately dangerous, Substances which require special skin and eye protection Data Source: RU OEL	>= 0,3 - < 1

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		(Eyes, Central nervous system) Asp. Tox.2; H305	MPC-STEL: 15 mg/m ³ Class 3 - Moderately dangerous, Substances which require special skin and eye protection Data Source: RU OEL	
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For explanation of abbreviations see section 16.

4. FIRST AID MEASURES

- General advice : Call a physician or poison control centre immediately.
If breathing is irregular or stopped, administer artificial respiration.
Never give anything by mouth to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Contains an N-methyl carbamate that inhibits cholinesterase. This product contains an anticholinesterase compound. Do not use if under medical advice not to work with such compounds.
- If inhaled : If inhaled, remove to fresh air.
Artificial respiration and/or oxygen may be necessary.
Call a poison control center or doctor for treatment advice.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off immediately with soap and plenty of water.
In the case of skin irritation or allergic reactions see a physician.
If after contact with the skin signs of poisoning appear, call a physician or poison control centre immediately.
- In case of eye contact : If easy to do, remove contact lens, if worn.
Hold eye open and rinse slowly and gently with water for 15-20 minutes.
Get medical advice/ attention.
- If swallowed : Call a physician or poison control centre immediately.
If swallowed, drink 1 or 2 glasses of water and try once or twice to induce vomiting by touching the back of throat with finger.
Induce vomiting, but only if victim is fully conscious.
Rinse mouth with water.
- Most important symptoms and effects, both acute and delayed : Poisoning produces effects associated with anticholinesterase activity which may include:
Breathing difficulties
Shortness of breath
Dizziness
Nausea
Weakness
Headache

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blurred vision
 constriction of pupils
 slow pulse
 Sweating
 muscle twitching

Notes to physician : Contraindication: Oximes (pralidoxime), succinylcholine and other cholinergic agents, respiratory stimulants and physostigmine.
 Morphine therapy is contra-indicated.
 Administer atropine sulphate as an antidote until complete atropinisation (1.2-2.0 mg i.v. every 10-30 minutes).
 2-PAM may be used as an antidote in conjunction with atropine sulphate but must not be used alone.
 Allow no further exposure to any cholinesterase inhibitor until full recovery is assured.

5. FIREFIGHTING MEASURES

Flammable properties

Flash point : 34,5 °C
 Method: closed cup

Lower explosion limit / Lower flammability limit : 3,3 vol %

Suitable extinguishing media : Water spray
 Alcohol-resistant foam
 Carbon dioxide (CO₂)
 Dry chemical

Unsuitable extinguishing media : Do not use direct water stream.
 High volume water jet

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.
 Vapours may form explosive mixtures with air.
 Do not allow run-off from fire fighting to enter drains or water courses.
 Flash back possible over considerable distance.

Hazardous combustion products : Nitrogen oxides (NO_x)
 Carbon oxides

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
 Evacuate area.
 Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Use water spray to cool unopened containers.

Further information : Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.
 Do not use a solid water stream as it may scatter and spread fire.
 Use a water spray to cool fully closed containers.
 Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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Special protective equipment for firefighters : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Remove all sources of ignition.
Ventilate the area.
Use personal protective equipment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
Prevent from entering into soil, ditches, sewers, underwater.
See Section 12, Ecological Information.

Methods and materials for containment and cleaning up : Clean up remaining materials from spill with suitable absorbant.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped,
Recovered material should be stored in a vented container.
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.
Wipe up with absorbent material (e.g. cloth, fleece).
Non-sparking tools should be used.
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Suppress (knock down) gases/vapours/mists with a water spray jet.
See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

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- Local/Total ventilation : Use with local exhaust ventilation.
Use only in an area equipped with explosion proof exhaust ventilation.
- Advice on safe handling : To avoid spills during handling keep bottle on a metal tray.
Avoid formation of aerosol.
Non-sparking tools should be used.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Do not breathe vapours/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area.
Do not breathe vapours or spray mist.
Do not get in eyes.
Avoid contact with skin and eyes.
Avoid prolonged or repeated contact with skin.
Keep container tightly closed.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Store in a closed container.
No smoking.
Prevent unauthorized access.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labelled containers.
Keep tightly closed.
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store near acids.
Strong oxidizing agents
Organic peroxides
Flammable solids
Pyrophoric liquids
Self-heating substances and mixtures
Substances and mixtures, which in contact with water, emit flammable gases
Explosives
Gases
- Packaging material : Unsuitable material: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis

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ethanol	64-17-5	MPC-TWA (vapour and/or gas)	1.000 mg/m ³	RU OEL
Further information: Class 4 - Low hazard				
		MPC-STEL (vapour and/or gas)	2.000 mg/m ³	RU OEL
Further information: Class 4 - Low hazard				
Dimethyl Succinate	106-65-0	MPC-STEL (mixture of vapour and aerosol)	10 mg/m ³	RU OEL
Further information: Class 3 - Moderately dangerous, Substances which require special skin and eye protection				
Dimethyl adipate	627-93-0	MPC-STEL (mixture of vapour and aerosol)	10 mg/m ³	RU OEL
Further information: Class 3 - Moderately dangerous, Substances which require special skin and eye protection				
methanol	67-56-1	MPC-TWA (vapour and/or gas)	5 mg/m ³	RU OEL
Further information: Class 3 - Moderately dangerous, Substances which require special skin and eye protection				
		MPC-STEL (vapour and/or gas)	15 mg/m ³	RU OEL
Further information: Class 3 - Moderately dangerous, Substances which require special skin and eye protection				
		TWA	200 ppm 260 mg/m ³	2006/15/EC

Engineering measures : Use only with adequate ventilation.

Personal protective equipment

Respiratory protection : Where there is potential for airborne exposures in excess of applicable limits, wear approved respiratory protection with dust/mist cartridge.

Hand protection

Remarks : Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Gloves must be inspected prior to use. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Gauntlets of 35 cm long or longer shall be worn over the combination sleeve. Before removing gloves clean them with soap and water.

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Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection : Safety glasses
Wear overall chemical splash goggles and face shield when the possibility exists for eye and face contact due to splashing or spraying of material.

Skin and body protection : Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Protective measures : Eyewash facility and safety shower should be available. All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated. End users of this product should follow label instructions for personal protection when using this product.

Hygiene measures : Avoid contact with skin, eyes and clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Wash all protective clothing after use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	blue
Odour	:	alcohol-like
pH	:	4,9
Flash point	:	34,5 °C
		Method: closed cup
Self-ignition	:	304 °C
Lower explosion limit / Lower flammability limit	:	3,3 vol %
Relative density	:	No data available
Density	:	1,036 g/cm ³ (20 °C)

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Partition coefficient: n-octanol/water	:	Not applicable
Viscosity	:	
Viscosity, dynamic	:	No data available
Explosive properties	:	Not explosive
Surface tension	:	No data available

10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	No decomposition if stored and applied as directed. Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned. Vapours may form explosive mixture with air. May form explosive dust-air mixture.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Strong acids Strong bases
Hazardous decomposition products	:	Carbon oxides

11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity	:	LD50 (Rat, male and female): 132 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat): 1,28 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403
Acute dermal toxicity	:	LD50 (Rat, male and female): > 5.000 mg/kg Method: OECD Test Guideline 402

Components:**Dimethyl glutarate:**

Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 11 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 2.000 mg/kg

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Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

ethanol:

Acute oral toxicity : LD50 (Rat): > 7.000 mg/kg
LDLo (human): 1.400 mg/kg

Acute inhalation toxicity : LC50 (Rat): 124,7 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 15.800 mg/kg

methomyl (ISO):

Acute oral toxicity : LD50 (Rat, male and female): 32 mg/kg
Method: Directive 67/548/EEC, Annex V, B.1.
Target Organs: Central nervous system

Acute inhalation toxicity : LC50 (Rat, Male and female): 0,258 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, Male and female): > 2.000 mg/kg
Method: Directive 67/548/EEC, Annex V, B.3.

Dimethyl Succinate:

Acute oral toxicity : Remarks: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.
LD50 (Rat): 6.892 mg/kg

Acute inhalation toxicity : Remarks: No adverse effects are anticipated from single exposure to mist.
LC50 (Rat): > 5,9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
LD50 (Rat): > 2.000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

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Dimethyl adipate:

- Acute oral toxicity : LD50 (Rat): 8.191 mg/kg
- Acute inhalation toxicity : Remarks: Vapor may cause irritation of the upper respiratory tract (nose and throat).
Mist may cause irritation of upper respiratory tract (nose and throat).
- LC50 (Rat, male and female): > 11 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: For similar material(s):
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 5.000 mg/kg

methanol:

- Acute oral toxicity : Remarks: Swallowing a small amount may cause serious injury; swallowing larger amounts may be fatal.
- LD50 (Rat): > 5.000 mg/kg
Assessment: The component/mixture is toxic after single ingestion.
Remarks: Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.
Effects may be delayed.
- Lethal Dose (Humans): 340 mg/kg
Method: Estimated.
- Lethal Dose (Humans): 29 - 237 ml
Method: Estimated.
- Acute inhalation toxicity : Remarks: Easily attainable vapor concentrations may cause serious adverse effects, even death.
At lower concentrations:
May cause respiratory irritation and central nervous system depression.
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.
Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death.
Effects may be delayed.
- LC50 (Rat): 3 mg/l
Exposure time: 4 h
Test atmosphere: vapour
- Acute dermal toxicity : LD50 (Rabbit): 15.800 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.

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Remarks: Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

Skin corrosion/irritation**Product:**

Species	:	Rabbit
Exposure time	:	72 h
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Components:**ethanol:**

Species	:	Rabbit
Result	:	No skin irritation

methomyl (ISO):

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

methanol:

Result	:	No skin irritation
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Serious eye damage/eye irritation**Product:**

Species	:	Rabbit
Result	:	Corrosive
Method	:	OECD Test Guideline 405

Components:**ethanol:**

Species	:	Rabbit
Result	:	Eye irritation

methomyl (ISO):

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

methanol:

Result	:	No eye irritation
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Respiratory or skin sensitisation**Product:**

Test Type : Buehler Test
Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : OECD Test Guideline 406

Components:**Dimethyl glutarate:**

Remarks : For skin sensitization:
Did not demonstrate the potential for contact allergy in mice.

Remarks : For respiratory sensitization:
No relevant data found.

ethanol:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.

methomyl (ISO):

Test Type : Buehler Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.

Dimethyl Succinate:

Remarks : For skin sensitization:
Did not demonstrate the potential for contact allergy in mice.

Remarks : For respiratory sensitization:
No relevant data found.

Dimethyl adipate:

Remarks : For this family of materials:
For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.
Did not demonstrate the potential for contact allergy in mice.

Remarks : For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity**Components:****Dimethyl glutarate:**

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

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ethanol:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

methomyl (ISO):

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Dimethyl Succinate:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Dimethyl adipate:

Germ cell mutagenicity - Assessment : As product:, Animal genetic toxicity studies were negative., For this family of materials:, In vitro genetic toxicity studies were negative.

methanol:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative in some cases and positive in other cases.

Carcinogenicity**Components:****ethanol:**

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects., Ethanol when not consumed in an alcoholic beverage is not classifiable as a human carcinogen., Epidemiology studies provide evidence that drinking of alcoholic beverages (containing ethanol) is associated with cancer, and IARC has classified alcoholic beverages as carcinogenic to humans.

methomyl (ISO):

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

methanol:

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

Reproductive toxicity**Components:****Dimethyl glutarate:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Development effects were not observed in laboratory animals.

ethanol:

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility. Has caused birth defects in lab animals at high doses.

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methomyl (ISO):

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects in laboratory animals.

Dimethyl Succinate:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects in laboratory animals.

Dimethyl adipate:

Reproductive toxicity - Assessment : For this family of materials:, In animal studies, did not interfere with reproduction.
For this family of materials:, Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

methanol:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Methanol has caused birth defects in mice at doses nontoxic to the mother as well as slight behavioral effects in offspring of rats.

STOT - single exposure**Product:**

Assessment : Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Components:**Dimethyl glutarate:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

ethanol:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

methomyl (ISO):

Exposure routes : Inhalation
Target Organs : Central nervous system
Assessment : May cause drowsiness or dizziness.

Dimethyl Succinate:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

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Dimethyl adipate:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

methanol:

Target Organs : Eyes, Central nervous system
Assessment : Causes damage to organs.

Repeated dose toxicity

Components:

Dimethyl glutarate:

Species : Rat
Application Route : Inhalation
Test atmosphere : dust/mist
Exposure time : 90-day
Remarks : Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Dimethyl Succinate:

Application Route : Inhalation
Test atmosphere : dust/mist
Exposure time : 90-day
Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Dimethyl adipate:

Remarks : Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

methanol:

Remarks : Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Aspiration toxicity

Product:

Based on physical properties, not likely to be an aspiration hazard.

Components:

Dimethyl glutarate:

Based on available information, aspiration hazard could not be determined.

ethanol:

Based on physical properties, not likely to be an aspiration hazard.

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methomyl (ISO):

Based on available information, aspiration hazard could not be determined.

Dimethyl Succinate:

Based on available information, aspiration hazard could not be determined.

Dimethyl adipate:

Based on physical properties, not likely to be an aspiration hazard.

methanol:

May be harmful if swallowed and enters airways.

12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

- | | | |
|---|---|--|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 81 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: For similar material(s):

LC50 (Lepomis macrochirus (Bluegill sunfish)): 5,1 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: For similar material(s): |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia (water flea)): 0,096 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes |
| Toxicity to terrestrial organisms | : | oral LD50 (Apis mellifera (bees)): 106 µg/L
Exposure time: 48 h
Method: OEPP/EPPO Test Guideline 170
GLP: yes

contact LD50 (Apis mellifera (bees)): 090 µg/L
Exposure time: 48 h
Method: OEPP/EPPO Test Guideline 170
GLP: yes |

Components:**Dimethyl glutarate:**

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Toxicity to fish : LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 30,9 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 112 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (*Pseudokirchneriella subcapitata* (green algae)): > 85 mg/l
Exposure time: 72 h

NOEC (*Pseudokirchneriella subcapitata* (green algae)): 36 mg/l
Exposure time: 72 h

ethanol:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 11.200 - 13.000 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: Method Not Specified.

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 5.414 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EbC50 (*Skeletonema costatum* (marine diatom)): 10.943 - 11.619 mg/l
End point: Biomass
Exposure time: 5 d
Method: OECD Test Guideline 201 or Equivalent

Toxicity to microorganisms : EC50 (activated sludge): > 1.000 mg/l

methomyl (ISO):

Toxicity to fish : LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 0,63 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 0,017 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (*Pseudokirchneriella subcapitata* (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 100

Toxicity to fish (Chronic toxicity) : NOEC (*Pimephales promelas* (fathead minnow)): 0,073 mg/l
Exposure time: 35 d
Test Type: Early Life-Stage

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0,0016 mg/l
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 23 mg/kg
Exposure time: 14 d
Method: OECD Test Guideline 207

Toxicity to terrestrial organisms : LC50 (Anas platyrhynchos (Mallard duck)): 3.952 mg/kg
Exposure time: 8 d
Method: OECD Test Guideline 205

LC50 (Colinus virginianus (Bobwhite quail)): > 5.620 mg/kg
Exposure time: 8 d
Method: OECD Test Guideline 205

LD50 (Apis mellifera (bees)): 0,00028 mg/kg
Exposure time: 2 d
Method: US EPA Test Guideline OPPTS 850.3020
Remarks: Oral

LC50 (Apis mellifera (bees)): 0,00016 mg/kg
Exposure time: 2 d
Method: US EPA Test Guideline OPPTS 850.3020
Remarks: Contact

oral LD50 (Colinus virginianus (Bobwhite quail)): > 24,2 mg/kg
Remarks: Material is highly toxic to birds on an acute basis (LD50 between 10 and 50 mg/kg).

Dimethyl Succinate:

Toxicity to fish : Remarks: No relevant data found.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 96 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 100 mg/l
Exposure time: 96 h

Dimethyl adipate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 72 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
End point: Growth rate

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Exposure time: 72 h
Method: OECD Test Guideline 201

methanol:

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50 (Oncorhynchus mykiss (rainbow trout)): 19.000 mg/l
Exposure time: 96 h
Method: Method Not Specified.

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 10.000 mg/l
Exposure time: 48 h
Method: Method Not Specified.

Toxicity to algae/aquatic plants : ErC50 (Algae (Scenedesmus subspicatus)): 120 mg/l
End point: Growth rate
Exposure time: 72 h
Method: OECD Test Guideline 201 or Equivalent

Toxicity to microorganisms : IC50 (activated sludge): > 1.000 mg/l
Exposure time: 3 h

Persistence and degradability**Product:**

Biodegradability : Result: Not readily biodegradable.

Components:**Dimethyl glutarate:**

Biodegradability : Result: Biodegradable
Remarks: Material is biodegradable.

ethanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 70 %
Exposure time: 5 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Pass

ThOD : 2,08 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Rate constant: 3,58E-12 cm³/s
Method: Estimated.

methomyl (ISO):

Biodegradability : Result: Not readily biodegradable.

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Dimethyl adipate:

Biodegradability : Result: Readily biodegradable.
Remarks: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

Biodegradation: 100 %
Exposure time: 29 d
Method: OECD Test Guideline 302A or Equivalent
Remarks: 10-day Window: Not applicable

ThOD : 1,75 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Rate constant: 3,9736E-12 cm³/s
Method: Estimated.

methanol:

Biodegradability : Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 20 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Pass

Biochemical Oxygen Demand (BOD) : 72 %
Incubation time: 5 d

79 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 1,49 kg/kg
Method: Dichromate

ThOD : 1,50 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Concentration: 1.500.000 1/cm³
Rate constant: 6,16E-13 cm³/s
Method: Estimated.

Bioaccumulative potential**Components:****Dimethyl glutarate:**

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 0,49 (20 °C)
pH: 7

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ethanol:

Partition coefficient: n-octanol/water : log Pow: -0,31
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

methomyl (ISO):

Bioaccumulation : Remarks: Does not bioaccumulate.

Dimethyl Succinate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 0,33 (40 °C)
pH: 7,1

Dimethyl adipate:

Partition coefficient: n-octanol/water : log Pow: 1,4
Method: Method Not Specified.

methanol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): < 10
Method: Measured

Partition coefficient: n-octanol/water : log Pow: -0,77
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil**Components:****ethanol:**

Distribution among environmental compartments : Koc: 1,0
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

methanol:

Distribution among environmental compartments : Koc: 0,44
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

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Other adverse effects**Components:****ethanol:**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Dimethyl Succinate:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Dimethyl adipate:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

methanol:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.
If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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14. TRANSPORT INFORMATION**ADR**

UN number : UN 2991
Proper shipping name : CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
(Methomyl, Ethanol)
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : 6.1 (3)
Hazard Identification Number : 63
Tunnel restriction code : (D/E)
Environmentally hazardous : no

UNRTDG

UN number : UN 2991
Proper shipping name : CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
(Methomyl, Ethanol)
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : 6.1 (3)
Environmentally hazardous : no

IATA-DGR

UN/ID No. : UN 2991
Proper shipping name : Carbamate pesticide, liquid, toxic, flammable
(Methomyl, Ethanol)
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : Toxic, Flammable Liquids
Packing instruction (cargo aircraft) : 663
Packing instruction (passenger aircraft) : 655

IMDG-Code

UN number : UN 2991
Proper shipping name : CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
(Methomyl, Ethanol)
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : 6.1 (3)
EmS Code : F-E, S-D
Marine pollutant : yes(Methomyl)
Remarks : Stowage category A

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

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

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Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

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

16. OTHER INFORMATION
Full text of H-Statements

H225	Highly flammable liquid and vapour.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H305	May be harmful if swallowed and enters airways.
H311	Toxic in contact with skin.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H370	Causes damage to organs.
H400	Very toxic to aquatic life.
H402	Harmful 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
Asp. Tox.	:	Aspiration hazard
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
STOT SE	:	Specific target organ toxicity - single exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
RU OEL	:	SanPiN 1.2.3685-21 Table 2.1, Table 2.8, Table 2.16 & Table 2.17 Maximum permissible concentrations (MPC) in the air of the working area
2006/15/EC / TWA	:	Limit Value - eight hours
RU OEL / MPC-STEL	:	Maximum Permissible Concentration - Short Term Exposure
RU OEL / MPC-TWA	:	Maximum Permissible Concentration - Time Weighted Average

ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; ASTM - American Society for the Testing of Materials; ECx - Concentration associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; 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; NOEC - Non-Observed Effective Concentration; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and

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Pollution Prevention; (Q)SAR - (Quantitative) Structure Activity Relationship; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SDS - Safety Data Sheet; UN - United Nations.

NZIoC - New Zealand Inventory of Chemicals.

Further information

Other information : Take notice of the directions of use on the label.

Product code: GF-4027

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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