SAFETY DATA SHEET

CURTAIL® M

Version	Revision Date:	SDS Number:	Date of last issue: 11/07/2022
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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 the United States and may not meet the regulatory requirements in other countries.

SECTION 1. IDENTIFICATION

Product name : CURTAIL® M

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE LLC
9330 ZIONSVILLE RD
INDIANAPOLIS, IN, 46268-1053
UNITED STATES

Customer Information Number : 800-992-5994

E-mail address : customerinformation@corteva.com

Emergency telephone : INFOTRAC (CONTRACT 84224).

+1 800-992-5994 or +1 317-337-6009

Recommended use of the chemical and restrictions on use

Recommended use : End use herbicide product

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H335 May cause respiratory irritation.

Precautionary Statements :

Prevention:

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
salts and esters of MCPA	29450-45-1	42.91
clopyralid (ISO)	1702-17-6	4.91
cyclohexanone	108-94-1	>= 10 - < 20
Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified	64742-95-6	>= 10 - < 20
Alkylphenol alkoxylate	69029-39-6	>= 3 - < 10
1,2,4-trimethylbenzene	95-63-6	>= 3 - < 10
Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified	64742-95-6	>= 1 - < 3
cumene	98-82-8	>= 0.1 - < 0.3

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled : Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.
If breathing is difficult, oxygen should be administered by qualified personnel.

In case of skin contact : Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

In case of eye contact : Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.
Suitable emergency eye wash facility should be available in work area.

If swallowed : Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed : None known.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician	:	Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION 5. FIRE-FIGHTING MEASURES

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. Vapors 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	:	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon oxides Hydrogen chloride gas Hydrogen fluoride
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.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation.
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Remove all sources of ignition.
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 overpressurization of the container.
Wipe up with absorbent material (e.g. cloth, fleece).
Neutralize with chalk, alkali solution or ammonia.
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/vapors/mists with a water spray jet.
See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

Local/Total ventilation : Use with local exhaust ventilation.
Use only in an area equipped with explosion proof exhaust ventilation.

Advice on safe handling : 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 vapors/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety practice.
Avoid exposure - obtain special instructions before use.
Smoking, eating and drinking should be prohibited in the application area.
Do not breathe vapors or spray mist.
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.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Conditions for safe storage : Store in a closed container.
No smoking.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labeled 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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

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

cyclohexanone	108-94-1	TWA	20 ppm	ACGIH
		STEL	50 ppm	ACGIH
		TWA	50 ppm 200 mg/m3	OSHA Z-1
		TWA	25 ppm 100 mg/m3	OSHA P0
Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified	64742-95-6	TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
		TWA	400 ppm 1,600 mg/m3	OSHA P0
Alkylphenol alkoxylate	69029-39-6	TWA	2 mg/m3	Dow IHG
1,2,4-trimethylbenzene	95-63-6	TWA	25 ppm	ACGIH
		TWA	25 ppm 125 mg/m3	OSHA P0
		TWA	10 ppm	ACGIH
clopyralid (ISO)	1702-17-6	TWA	10 mg/m3	Dow IHG
Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified	64742-95-6	TWA	100 mg/m3	Dow IHG
		STEL	300 mg/m3	Dow IHG
		TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
		TWA	400 ppm 1,600 mg/m3	OSHA P0
cumene	98-82-8	TWA	5 ppm	ACGIH
		TWA	50 ppm 245 mg/m3	OSHA Z-1
		TWA	50 ppm 245 mg/m3	OSHA P0

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
cyclohexanone	108-94-1	1,2-Cyclohex-anediol	Urine	End of shift at end of work-week	80 mg/l	ACGIH BEI
		Cyclohexa-nol	Urine	End of shift (As soon as possible after exposure ceases)	8 mg/l	ACGIH BEI

Engineering measures : Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.
If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.
Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines.
If there are no applicable exposure limit requirements or guidelines, use an approved respirator.
Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.
For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Hand protection

Remarks : Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. 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 : Use chemical goggles.
If exposure causes eye discomfort, use a full-face respirator.

Skin and body protection : Wear clean, body-covering clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Color : Yellow

Odor : Sweet

Odor Threshold : No data available

pH	:	2.8 Method: pH Electrode
Melting point/range	:	Not applicable
Freezing point		No data available
Boiling point/boiling range	:	311 °F / 155 °C Method: Literature (cyclohexanone)
Flash point	:	136.2 °F / 57.9 °C Method: Pensky-Martens Closed Cup ASTM D 93, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	13.33 hPa (74.3 °F / 23.5 °C)
Relative vapor density	:	> 1
Relative density	:	1.1432 (68 °F / 20 °C) Reference substance: Water
Density	:	1.012 g/cm3
Solubility(ies) Water solubility	: :	 forms an emulsion
Partition coefficient: n-octanol/water	:	No data available.
Autoignition temperature	:	No data available
Viscosity Viscosity, dynamic	: :	 11.1 cP (68 °F / 20 °C) 5.7 cP (104 °F / 40 °C)
Explosive properties	:	No
Oxidizing properties	:	No significant increase (>5C) in temperature.

SECTION 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. Vapors may form explosive mixture with air. May form explosive dust-air mixture.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	None.
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon oxides Hydrogen chloride gas Hydrogen fluoride

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (Rat, female): 1,478 mg/kg Remarks: For similar material(s):
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 1.3 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 Remarks: For similar material(s): Maximum attainable concentration.
Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity Remarks: For similar material(s):

Components:

salts and esters of MCPA:

Acute oral toxicity	:	LD50 (Rat): 1,793 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 4.5 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
Remarks: Maximum attainable concentration.

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
GLP: yes

clopyralid (ISO):

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

Acute inhalation toxicity : LC50 (Rat): > 1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: No deaths occurred at this concentration., The LC50 value is greater than the Maximum Attainable Concentration.
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

cyclohexanone:

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

Acute inhalation toxicity : Remarks: Vapor concentrations are attainable which could be hazardous on single exposure.
May cause central nervous system effects.
Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs.

LC50 (Rat): > 6.2 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Symptoms: No deaths occurred at this concentration.
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit): 950 mg/kg

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

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

Acute inhalation toxicity : Remarks: Mist may cause irritation of upper respiratory tract (nose and throat).
May cause dizziness and drowsiness.

LC50 (Rat): 6.193 mg/l
Exposure time: 4 h

Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Maximum attainable concentration.

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

Alkylphenol alkoxylate:

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

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg

1,2,4-trimethylbenzene:

Acute oral toxicity : LD50 (Rat): > 3,400 mg/kg

Acute inhalation toxicity : Remarks: Prolonged excessive exposure may cause serious adverse effects, even death.
Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.
May cause central nervous system effects.
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50 (Rat): 18 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Acute oral toxicity : LD50 (Rat): 3,500 mg/kg

Acute inhalation toxicity : Remarks: Vapor concentrations are attainable which could be hazardous on single exposure.
May cause respiratory irritation and central nervous system depression.
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

LC50 (Rat): > 10.2 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

cumene:

Acute oral toxicity : LD50 (Rat): 2,260 mg/kg
Remarks: Contact with the tongue may produce a burning sensation and excess salivation.

Acute inhalation toxicity : LC50 (Rat): > 17.6 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity

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

Skin corrosion/irritation

Product:

Result : No skin irritation

Components:

salts and esters of MCPA:

Result : Mild skin irritation

cyclohexanone:

Result : Skin irritation

Alkylphenol alkoxylate:

Species : Rabbit
Result : No skin irritation

1,2,4-trimethylbenzene:

Result : Skin irritation

cumene:

Result : No skin irritation

Serious eye damage/eye irritation

Product:

Result : No eye irritation

Components:

salts and esters of MCPA:

Result : No eye irritation

clopyralid (ISO):

Species : Rabbit
Result : Corrosive

cyclohexanone:

Result : Corrosive

Alkylphenol alkoxylate:

Species : Rabbit
Result : No eye irritation

1,2,4-trimethylbenzene:

Result : Eye irritation

cumene:

Result : No eye irritation

Respiratory or skin sensitization

Components:

salts and esters of MCPA:

Assessment : Does not cause skin sensitization.
Remarks : Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

clopyralid (ISO):

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

cyclohexanone:

Assessment : Does not cause skin sensitization.
Remarks : Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Remarks : For skin sensitization:
Did not cause sensitization on laboratory animals.

Remarks : For respiratory sensitization:
No relevant data found.

Alkylphenol alkoxylate:

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

1,2,4-trimethylbenzene:

Remarks : For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Remarks : For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

cumene:

Remarks : For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity

Components:

salts and esters of MCPA:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

clopyralid (ISO):

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

cyclohexanone:

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

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Germ cell mutagenicity - Assessment : Did not show mutagenic effects in animal experiments.

Alkylphenol alkoxylate:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative.

1,2,4-trimethylbenzene:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

cumene:

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Carcinogenicity

Product:

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

Components:

salts and esters of MCPA:

Carcinogenicity - Assessment : For similar active ingredient(s)., 2-methyl-4-chlorophenoxyacetic acid (MCPA)., Did not cause cancer in laboratory animals.

clopyralid (ISO):

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

cyclohexanone:

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

Available data are inadequate to evaluate carcinogenicity.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Has caused cancer in laboratory animals., However, the relevance of this to humans is unknown.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Carcinogenicity - Assessment : Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

cumene:

Carcinogenicity - Assess- : Animal testing did not show any carcinogenic effects.

ment

Has caused cancer in laboratory animals., However, the relevance of this to humans is unknown.

Reproductive toxicity

Components:

salts and esters of MCPA:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction.
Has caused birth defects in laboratory animals only at doses toxic to the mother., Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

clopyralid (ISO):

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction.
Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

cyclohexanone:

Reproductive toxicity - Assessment : Cyclohexanone caused reduced growth and survival of offspring in an animal reproduction study. Dose levels producing this effect also caused central nervous system effects in parental animals., In animal studies, has been shown to interfere with reproduction in males., Effects have been seen only at doses that produced significant toxicity to the parent animals.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction.

Alkylphenol alkoxylate:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction., In animal studies, did not interfere with fertility.
Did not cause birth defects or any other fetal effects in laboratory animals.

1,2,4-trimethylbenzene:

Reproductive toxicity - Assessment : For similar material(s):, In animal studies, did not interfere with reproduction.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Reproductive toxicity - Assessment : In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.
Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother., Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice.
In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects.

cumene:

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

STOT-single exposure

Product:

Assessment : May cause respiratory irritation.

Components:

salts and esters of MCPA:

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

clopyralid (ISO):

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

cyclohexanone:

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

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Routes of exposure : inhalation (dust/mist/fume)
Assessment : May cause respiratory irritation., May cause drowsiness or dizziness.

Alkylphenol alkoxylate:

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

1,2,4-trimethylbenzene:

Routes of exposure : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Assessment : May cause respiratory irritation.

Assessment : May cause drowsiness or dizziness.

cumene:

Routes of exposure : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

STOT-repeated exposure

Product:

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

Components:

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

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

Repeated dose toxicity

Components:

salts and esters of MCPA:

Remarks : For similar material(s):
2-methyl-4-chlorophenoxyacetic acid (MCPA).
In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Testes.

clopyralid (ISO):

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

cyclohexanone:

Remarks : In animals, effects have been reported on the following organs:
Central nervous system.
Kidney.
Liver.
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

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

Alkylphenol alkoxylate:

Remarks : In animals, effects have been reported on the following organs:
Kidney.
Liver.

1,2,4-trimethylbenzene:

Remarks : In animals, effects have been reported on the following organs:
Respiratory tract.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Remarks : In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.
For the minor component(s):
Cumene.
Eye.

cumene:

Remarks : Cataracts were observed in rats exposed to cumene vapors.

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

Components:

salts and esters of MCPA:

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

clopyralid (ISO):

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

cyclohexanone:

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

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

May be fatal if swallowed and enters airways.

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

1,2,4-trimethylbenzene:
May be harmful if swallowed and enters airways.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:
May be fatal if swallowed and enters airways.

cumene:
May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	Remarks: Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested). LC50 (Oncorhynchus mykiss (rainbow trout)): 67.3 mg/l Exposure time: 96 h Test Type: static test
Toxicity to terrestrial organisms	:	oral LD50 (Colinus virginianus (Bobwhite quail)): 2706 Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). oral LD50 (Apis mellifera (bees)): > 215,0 Exposure time: 48 h contact LD50 (Apis mellifera (bees)): > 200,0 Exposure time: 48 h

Components:

salts and esters of MCPA:

Toxicity to fish	:	Remarks: Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.50 mg/l Exposure time: 96 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.29 mg/l Exposure time: 48 h

Toxicity to algae/aquatic plants	:	EC50 (Skeletonema costatum (marine diatom)): 0.17 mg/l End point: Growth inhibition (cell density reduction) Exposure time: 96 h EC50 (Lemna minor (duckweed)): 0.13 mg/l Exposure time: 14 d
Toxicity to terrestrial organisms	:	Remarks: Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm)., Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). oral LD50 (Colinus virginianus (Bobwhite quail)): > 2250 mg/kg bodyweight. Exposure time: 14 d GLP: yes dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5620 mg/kg diet. Exposure time: 5 d GLP: yes

Ecotoxicology Assessment

Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

clopyralid (ISO):

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 99.9 mg/l Exposure time: 96 h Test Type: static test NOEC (Lepomis macrochirus (Bluegill sunfish)): > 102 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 99 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 33.1 mg/l End point: Growth rate inhibition Exposure time: 96 h ErC50 (Myriophyllum spicatum): > 3 mg/l Exposure time: 14 d NOEC (Myriophyllum spicatum): 0.0089 mg/l Exposure time: 14 d
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 10.8 mg/l End point: Other Exposure time: 34 d Method: OECD Test Guideline 210
Toxicity to daphnia and other	:	NOEC (Daphnia magna (Water flea)): 17 mg/l

aquatic invertebrates (Chronic toxicity)		Exposure time: 21 d Test Type: static test Method: OECD Test Guideline 211 or Equivalent
M-Factor (Chronic aquatic toxicity)	:	10
Toxicity to microorganisms	:	(Bacteria): > 100 mg/l
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg Exposure time: 14 d End point: survival
Toxicity to terrestrial organisms	:	oral LD50 (Anas platyrhynchos (Mallard duck)): 1465 mg/kg bodyweight. dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5000 mg/kg diet. oral LD50 (Apis mellifera (bees)): > 100 micrograms/bee Exposure time: 48 h End point: mortality contact LD50 (Apis mellifera (bees)): > 98.1 micrograms/bee

Ecotoxicology Assessment

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

cyclohexanone:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 630 mg/l Exposure time: 48 h Test Type: static test LC50 (Pimephales promelas (fathead minnow)): 527 - 732 mg/l Exposure time: 96 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 820 mg/l Exposure time: 24 h
Toxicity to algae/aquatic plants	:	LOEC (Scenedesmus quadricauda (Green algae)): 370 mg/l Exposure time: 192 h Method: Method Not Specified.
Toxicity to microorganisms	:	EC50 (activated sludge): > 1,000 mg/l Method: OECD 209 Test

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 9.2 mg/l Exposure time: 96 h

Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 3.2 mg/l
Exposure time: 48 h
Remarks: For similar material(s):

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): 2.9 mg/l
Exposure time: 72 h
Remarks: For similar material(s):

NOEC (Pseudokirchneriella subcapitata (green algae)): 1 mg/l
Exposure time: 72 h
Remarks: For similar material(s):

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

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

Alkylphenol alkoxylate:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 4.8 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

LC50 (Oncorhynchus mykiss (rainbow trout)): 3.7 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 10.5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202 or Equivalent

Toxicity to terrestrial organisms : dietary LC50 (Apis mellifera (bees)): > 105 micrograms/bee
Exposure time: 2 d

contact LD50 (Apis mellifera (bees)): > 100 micrograms/bee
Exposure time: 2 d

No Observed Effects Level (NOEL) (Colinus virginianus (Bobwhite quail)): 2,250 mg/kg

oral LD50 (Colinus virginianus (Bobwhite quail)): > 2,250 mg/kg

Ecotoxicology Assessment

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

1,2,4-trimethylbenzene:

Toxicity to fish : Remarks: Material is moderately toxic to aquatic organisms on

an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50 (Pimephales promelas (fathead minnow)): 7.7 mg/l
Exposure time: 96 h
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.6 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 2.356 mg/l
Exposure time: 96 h

Ecotoxicology Assessment

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

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Toxicity to fish : Remarks: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50 (Oncorhynchus mykiss (rainbow trout)): 9.22 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 2.9 mg/l
Exposure time: 72 h
Remarks: For similar material(s):

Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

dietary LC50 (Colinus virginianus (Bobwhite quail)): > 6500 mg/kg diet.
Exposure time: 8 d

oral LD50 (Colinus virginianus (Bobwhite quail)): > 2150 mg/kg bodyweight.
Exposure time: 21 d

Ecotoxicology Assessment

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

cumene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.7 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 4.0 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae/aquatic plants	:	EbC50 (Pseudokirchneriella subcapitata (green algae)): 2.6 mg/l End point: Biomass Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 or Equivalent
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.35 mg/l End point: number of offspring Exposure time: 21 d Test Type: semi-static test Method: OECD Test Guideline 211 or Equivalent
Toxicity to terrestrial organisms	:	oral LD50 (redwing blackbird (Agelaius phoeniceus)): > 98 mg/kg

Persistence and degradability

Components:

salts and esters of MCPA:

Stability in water	:	Test Type: Hydrolysis Degradation half life (half-life): 76 d (25 °C) pH: 7 Method: Measured Test Type: Hydrolysis Degradation half life (half-life): 117 d (25 °C) pH: 9 Method: Measured

clopyralid (ISO):

Biodegradability	:	Biodegradation: 5 - 10 % Exposure time: 28 d Method: OECD Test Guideline 301B or Equivalent Remarks: 10-day Window: Fail
Biochemical Oxygen Demand (BOD)	:	0 mg/g 0 % Incubation time: 20 d
Chemical Oxygen Demand (COD)	:	0.73 kg/kg
ThOD	:	0.71 kg/kg
Stability in water	:	Test Type: Hydrolysis Method: Stable
Photodegradation	:	Test Type: Half-life (direct photolysis)

cyclohexanone:

Biodegradability	:	Result: Readily biodegradable. Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation: 87 % Exposure time: 14 d Method: OECD Test Guideline 301C or Equivalent Remarks: 10-day Window: Not applicable Biodegradation: 90 - 100 % Exposure time: 28 d Method: OECD Test Guideline 301F Remarks: 10-day Window: Pass
ThOD	:	2.61 kg/kg
Photodegradation	:	Test Type: Half-life (indirect photolysis) Sensitizer: OH radicals Concentration: 1,500,000 1/cm3 Rate constant: 1.21E-11 cm3/s Method: Estimated.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Biodegradability	:	Biodegradation: 78 % Exposure time: 28 d Remarks: Material is expected to be readily biodegradable.

Alkylphenol alkoxylate:

Biodegradability	:	Result: Not biodegradable Remarks: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
Chemical Oxygen Demand (COD)	:	1.78 kg/kg
ThOD	:	2.35 kg/kg

1,2,4-trimethylbenzene:

Biodegradability	:	Result: Readily biodegradable. Remarks: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability). Biodegradation: 100 % Exposure time: 1 d
ThOD	:	3.19 kg/kg
Photodegradation	:	Test Type: Half-life (indirect photolysis) Sensitizer: OH radicals

Rate constant: 1.670E-11 cm3/s
Method: Estimated.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Biodegradability : Result: Not biodegradable
Remarks: For the major component(s):
Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
For some component(s):
Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

cumene:

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

Biodegradation: 70 %
Exposure time: 20 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Pass

Biochemical Oxygen Demand (BOD) : 40%
Incubation time: 5 d

62%
Incubation time: 10 d

70%
Incubation time: 20 d

ThOD : 3.20 kg/kg
Method: Estimated.

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Concentration: 1,500,000 1/cm3
Rate constant: 6.90E-12 cm3/s
Method: Estimated.

Bioaccumulative potential

Components:

salts and esters of MCPA:

Bioaccumulation : Bioconcentration factor (BCF): 11,250

Partition coefficient: n-octanol/water : Remarks: Expected to be relatively immobile in soil (Koc > 5000).
Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

log Pow: 6.17

Method: Estimated.

clopyralid (ISO):

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): < 1
Method: Measured

Partition coefficient: n-octanol/water :

log Pow: -2.63
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

cyclohexanone:

Partition coefficient: n-octanol/water : log Pow: 0.81
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

Alkylphenol alkoxylate:

Partition coefficient: n-octanol/water : Remarks: No bioconcentration is expected because of the relatively high water solubility.
May foam in water.

1,2,4-trimethylbenzene:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 33 - 275
Exposure time: 56 d
Concentration: 0.2 mg/l
Method: Measured

Partition coefficient: n-octanol/water : log Pow: 3.63
Method: Measured
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Partition coefficient: n-octanol/water : Remarks: For the major component(s):
Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
For the minor component(s):
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

cumene:

Bioaccumulation : Species: Fish

Bioconcentration factor (BCF): 35.5
Method: Measured

Partition coefficient: n-octanol/water : log Pow: 3.4 - 3.7
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Components:

salts and esters of MCPA:

Distribution among environmental compartments : Koc: 10500
Method: Estimated.

Stability in soil : Dissipation time: 2 - 12 h
Method: Measured

clopyralid (ISO):

Distribution among environmental compartments : Koc: 4.9
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Stability in soil : Test Type: aerobic degradation
Dissipation time: 71 d
Method: Estimated.

cyclohexanone:

Distribution among environmental compartments : Koc: 15
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Distribution among environmental compartments : Remarks: No relevant data found.

1,2,4-trimethylbenzene:

Distribution among environmental compartments : Koc: 720
Method: Estimated.
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

Distribution among environmental compartments : Remarks: For the major component(s):
Potential for mobility in soil is low (Koc between 500 and 2000).

cumene:

Distribution among environmental compartments	:	Koc: 800 - 2800 Method: Estimated. Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

Other adverse effects

Components:

salts and esters of MCPA:

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.

clopyralid (ISO):

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.

cyclohexanone:

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.

Alkylphenol alkoxylate:

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.

1,2,4-trimethylbenzene:

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.

Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified:

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.

cumene:

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.

SECTION 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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 1993
Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (AROMATIC NAPHTHA, Cyclohexanone)
Class	:	3
Packing group	:	III
Labels	:	3

IATA-DGR

UN/ID No.	:	UN 1993
Proper shipping name	:	Flammable liquid, n.o.s. (AROMATIC NAPHTHA, Cyclohexanone)
Class	:	3
Packing group	:	III
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	366
Packing instruction (passenger aircraft)	:	355

IMDG-Code

UN number	:	UN 1993
Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (AROMATIC NAPHTHA, Cyclohexanone, MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester)
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	no
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.

Domestic regulation

49 CFR

UN/ID/NA number	:	NA 1993
Proper shipping name	:	Combustible liquid, n.o.s. (AROMATIC NAPHTHA, Cyclohexanone)
Class	:	CBL
Packing group	:	III
Labels	:	NONE
ERG Code	:	128
Marine pollutant	:	no
Reportable Quantity	:	Xylene only regulated in pack sizes > 11,140 kg Cyclohexanone only regulated in pack sizes > 11,420 kg

Further information

For US Domestic transport, according to 49 CFR 173.150 f (1), A flammable liquid with a flash point at or above 38 °C (100 °F) that does not meet the definition of any other hazard class may be reclassed as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation is impracticable., This product is only classified in containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (450 liters). If transporting by vessel or aircraft, unless other means of transportation is impracticable, the product must be shipped as a flammable liquid.

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.

SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards	:	Flammable (gases, aerosols, liquids, or solids) Acute toxicity (any route of exposure) Aspiration hazard Specific target organ toxicity (single or repeated exposure)
SARA 313	:	The following components are subject to reporting levels established by SARA Title III, Section 313:

1,2,4-trimethylbenzene	95-63-6	>= 5 - < 10 %
cumene	98-82-8	>= 0.1 - < 1 %

US State Regulations

Pennsylvania Right To Know

cyclohexanone	108-94-1
Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified	64742-95-6
1,2,4-trimethylbenzene	95-63-6
Solvent naphtha (petroleum), light arom.; Low boiling point naphtha -unspecified	64742-95-6

California Prop. 65

WARNING: This product can expose you to chemicals including cumene, sulphuric acid, propylene oxide, hexachlorobenzene, ethylene oxide, which is/are known to the State of California to cause cancer, and
hexachlorobenzene, ethylene oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

4,5,6-Trichloro-2-pyridinecarboxylic acid	496849-77-5
pentachlorobenzene	608-93-5

No substances are subject to TSCA 12(b) export notification requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-086

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION

Causes moderate eye irritation
Harmful if swallowed, inhaled or absorbed through the skin.

SECTION 16. OTHER INFORMATION

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	:	Dow Industrial Hygiene Guideline
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
Dow IHG / TWA	:	Time Weighted Average (TWA):
Dow IHG / STEL	:	Short term exposure limit
Dow IHG / TWA	:	Time weighted average
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; 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

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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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