SAFETY DATA SHEET

MARSHAL 480 EC

Version	Revision Date:	SDS Number:	Date of last issue: -
2.0	14.03.2022	50000358	Date of first issue: 19.02.2019

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

1.1 Product identifier

Product name MARSHAL 480 EC

Other means of identification

Product code 50000358

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

Use of the Sub-stance/Mixture : Insecticide

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

1.3 Details of the supplier of the safety data sheet

Supplier Address

FMC Chemicals (Pty) Ltd
Company Registration Number: 1988/001451/07
West End Office Park, Building C
Cnr. West Ave & Hall Street
Centurion, 0014

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

1.4 Emergency telephone

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

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapor.
Acute toxicity, Category 3	H301: Toxic if swallowed.

Acute toxicity, Category 3	H331: Toxic if inhaled.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitization, Sub-category 1B	H317: May cause an allergic skin reaction.
Germ cell mutagenicity, Category 1B	H340: May cause genetic defects.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Specific target organ toxicity - single exposure, Category 1	H370: Causes damage to organs.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms : 

Signal Word : Danger

Hazard Statements :

H226 Flammable liquid and vapor.
H301 + H331 Toxic if swallowed or if inhaled.
H304 May be fatal if swallowed and enters airways.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H351 Suspected of causing cancer.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or re-

peated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapors.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Hazardous ingredients which must be listed on the label:
carbosulfan (ISO)
Solvent naphtha (petroleum), light arom.

Additional Labeling

Restricted to professional users.

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
carbosulfan (ISO)	55285-14-8 259-565-9 006-084-00-5	Acute Tox. 3; H301 Acute Tox. 2; H330 Skin Sens. 1; H317 STOT SE 1; H370 (Nervous system, Bladder, Gastro-	>= 30 - < 50

		intestinal system, Blood) STOT RE 1; H372 (Nervous system, Bladder, Gastro-intestinal system, Blood) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 100 M-Factor (Chronic aquatic toxicity): 10	
Solvent naphtha (petroleum), light arom.	64742-95-6 265-199-0 649-356-00-4	Flam. Liq. 3; H226 Muta. 1B; H340 Carc. 1B; H350 STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory sys-tem) Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 30 - < 50

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.

If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.

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

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Toxic if swallowed or if inhaled.
May be fatal if swallowed and enters airways.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause genetic defects.
Suspected of causing cancer.
Causes damage to organs.
Causes damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

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

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : Carbon oxides
Sulfur oxides
Nitrogen oxides (NOx)
Hazardous combustion products

5.3 Advice for firefighters

Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.

Further information : Collect contaminated fire extinguishing water separately. This

must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : 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).

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not

be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

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

Substance name	End Use	Routes of exposure	Potential health effects	Value
Soybean oil, epoxidized	Workers	Inhalation	Long-term systemic effects	11.9 mg/m3
	Workers	Inhalation	Acute systemic effects	70 mg/m3
	Workers	Dermal	Long-term systemic effects	1.7 mg/kg bw/day
	Workers	Dermal	Acute systemic effects	10 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2.8 mg/m3
	Consumers	Inhalation	Acute systemic effects	17.5 mg/m3
	Consumers	Dermal	Long-term systemic effects	0.800 mg/kg bw/day
	Consumers	Dermal	Acute systemic effects	5 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0.800 mg/kg bw/day

	Consumers	Oral	Acute systemic effects	5 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Soybean oil, epoxidized	Soil	6.25 mg/kg dry weight (d.w.)

8.2 Exposure controls

Personal protective equipment

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

Hand protection
Material : Protective gloves

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

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

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid

Color : brown

Odor : hydrocarbon-like

Flash point : 46 - 48 °C
Method: closed cup

Density : 8.28 lb/gal

Solubility(ies)
Water solubility : emulsifiable

9.2 Other information

Flammability (liquids) : Sustains combustion

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

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

Vapors may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Not applicable

10.6 Hazardous decomposition products

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Toxic if swallowed or if inhaled.

Product:

Acute oral toxicity : LD50 (Rat): 69 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.5375 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,900 mg/kg

Components:

carbosulfan (ISO):

Acute oral toxicity : Acute toxicity estimate: 100.0 mg/kg
Method: Converted acute toxicity point estimate

LD50 (Rat, female): 185 mg/kg

Acute toxicity estimate: 185 mg/kg
Method: Calculation method

Acute inhalation toxicity : LC50 (Rat, female): 0.15 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute toxicity estimate: 0.15 mg/l
Test atmosphere: dust/mist
Method: Calculation method

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

Solvent naphtha (petroleum), light arom.:

Acute oral toxicity : LD50 (Rat, female): 3,492 mg/kg
Method: OECD Test Guideline 401

LD50 (Rat, male): 6,984 mg/kg
Method: OECD Test Guideline 401

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

Acute dermal toxicity : LD50 (Rabbit, male and female): > 3,160 mg/kg
Assessment: The component/mixture is minimally toxic after single contact with skin.

Skin corrosion/irritation

Not classified based on available information.

Product:

Result : slight irritation

Remarks : May cause skin irritation and/or dermatitis.

Components:

carbosulfan (ISO):

Species : Rabbit
Result : slight irritation

Solvent naphtha (petroleum), light arom.:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Mild skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Result : Irritation to eyes, reversing within 21 days

Remarks : May cause irreversible eye damage.

Components:

carbosulfan (ISO):

Species	:	Rabbit
Result	:	slight irritation

Solvent naphtha (petroleum), light arom.:

Species	:	Rabbit
Result	:	No eye irritation

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Product:

Result	:	Probability or evidence of low to moderate skin sensitization rate in humans
Remarks	:	Causes sensitization.

Components:

carbosulfan (ISO):

Test Type	:	Buehler Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.
Test Type	:	Patch test
Species	:	Guinea pig
Result	:	May cause sensitization by skin contact.

Solvent naphtha (petroleum), light arom.:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.

Germ cell mutagenicity

May cause genetic defects.

Components:

carbosulfan (ISO):

Genotoxicity in vitro	:	Test Type: reverse mutation assay Test system: Salmonella typhimurium Result: negative

Test Type: reverse mutation assay
Test system: Escherichia coli
Result: negative

Test Type: gene mutation test
Test system: Chinese hamster cells
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster cells
Result: negative

Genotoxicity in vivo : Test Type: chromosome aberration assay
Species: mice
Result: negative

Solvent naphtha (petroleum), light arom.:

Genotoxicity in vitro : Test Type: in vitro DNA damage and/or repair study
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: reverse mutation assay
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Bone marrow chromosome aberration
Species: Rat (male and female)
Application Route: Inhalation
Result: negative

Germ cell mutagenicity- Assessment : In vivo tests showed mutagenic effects

Carcinogenicity

Suspected of causing cancer.

Product:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Components:

carbosulfan (ISO):

Species : Mouse
Exposure time : 2 Years
NOAEL : 2.5 mg/kg bw/day
Result : negative

Species : Rat
Exposure time : 2 Years
NOAEL : 1 mg/kg bw/day
Result : negative

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

Solvent naphtha (petroleum), light arom.:

Carcinogenicity - Assessment	:	Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity

Not classified based on available information.

Components:

carbosulfan (ISO):

Effects on fertility	:	Test Type: Three-generation study Species: Rat Application Route: Oral General Toxicity Parent: NOAEL: 1.2 mg/kg bw/day Fertility: NOAEL: 1.2 mg/kg bw/day Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Oral General Toxicity Maternal: NOAEL: 2 mg/kg bw/day Developmental Toxicity: NOAEL: 2 Result: negative Test Type: Embryo-fetal development Species: Rabbit Application Route: Oral General Toxicity Maternal: NOAEL: 5 mg/kg bw/day Developmental Toxicity: NOAEL: 10 Result: negative
Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

Solvent naphtha (petroleum), light arom.:

Effects on fertility	:	Test Type: Three-generation study Species: Rat Application Route: inhalation (vapor) Fertility: NOAEC Mating/Fertility: 7.5 mg/l Result: negative Remarks: Based on data from similar materials
Effects on fetal development	:	Species: Mouse Application Route: inhalation (vapor) General Toxicity Maternal: LOAEC: 500 part per million Symptoms: Maternal effects.

STOT-single exposure

May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs.

Product:

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

Components:

carbosulfan (ISO):

Target Organs : Nervous system, Bladder, Gastro-intestinal system, Blood
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

Solvent naphtha (petroleum), light arom.:

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

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Product:

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

Components:

carbosulfan (ISO):

Target Organs : Nervous system, Bladder, Gastro-intestinal system, Blood
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Solvent naphtha (petroleum), light arom.:

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

Repeated dose toxicity

Components:

carbosulfan (ISO):

Species : Rat
NOAEL : 2 mg/kg bw/day
Application Route : Oral
Exposure time : 90 days

Species : Dog
NOAEL : 1.6 mg/kg bw/day
Application Route : Oral
Exposure time : 6 months

Solvent naphtha (petroleum), light arom.:

Species	:	Rat, male and female
	:	0.8 - 0.9 mg/l
Application Route	:	Inhalation
Test atmosphere	:	vapor
Remarks	:	Based on data from similar materials

Species	:	Rat, male
NOAEL	:	600 mg/kg
Application Route	:	Oral
Remarks	:	Based on data from similar materials

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:

carbosulfan (ISO):

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

Solvent naphtha (petroleum), light arom.:

May be fatal if swallowed and enters airways.

Neurological effects

Components:

carbosulfan (ISO):

Remarks	:	Neurotoxity observed in animals studies

Further information

Product:

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

SECTION 12: Ecological information

12.1 Toxicity

Components:

carbosulfan (ISO):

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.015 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.0015 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (microalgae)): > 20 mg/l Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	:	100
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.00828 mg/l Exposure time: 21 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.0032 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
M-Factor (Chronic aquatic toxicity)	:	10
Toxicity to terrestrial organisms	:	1.035 µg/bee Species: Apis mellifera (bees) Remarks: Oral 0.18 µg/bee Species: Apis mellifera (bees) Remarks: Contact LD50: 10 mg/kg Species: Anas platyrhynchos (Mallard duck)

Solvent naphtha (petroleum), light arom.:

Toxicity to fish	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 4.5 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 Remarks: Based on data from similar materials LL50 (Pimephales promelas (fathead minnow)): 8.2 mg/l Exposure time: 96 h Test Type: semi-static test Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 4.5 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic	:	EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l

plants		Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC50 (Tetrahymena pyriformis): 15.41 mg/l Exposure time: 40 h Test Type: Growth inhibition Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
Toxicity to fish (Chronic toxicity)	:	NOELR: 2.6 mg/l Exposure time: 14 d Species: Pimephales promelas (fathead minnow) Method: OECD Test Guideline 204 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR: 2.6 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

12.2 Persistence and degradability

Components:

carbosulfan (ISO):

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 28 % Exposure time: 28 d
Stability in water	:	Remarks: Hydrolyzes readily.

Solvent naphtha (petroleum), light arom.:

Biodegradability	:	Concentration: 49.2 mg/l Result: Inherently biodegradable. Biodegradation: 77.05 % Exposure time: 28 d Method: OECD Test Guideline 301F

12.3 Bioaccumulative potential

Components:

carbosulfan (ISO):

Bioaccumulation	:	Species: Fish Bioconcentration factor (BCF): 990 Remarks: Can accumulate in aquatic organisms.
Partition coefficient: n-octanol/water	:	log Pow: 7.42

12.4 Mobility in soil

Components:

carbosulfan (ISO):

Distribution among environmental compartments : Remarks: immobile

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 Other adverse effects

Product:

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

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number

IMDG : UN 2991

IATA : UN 2991

14.2 UN proper shipping name

IMDG	:	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Aromatic hydrocarbons, C10, Carbosulfan)
IATA	:	Carbamate pesticide, liquid, toxic, flammable (Aromatic hydrocarbons, C10, Carbosulfan)

14.3 Transport hazard class(es)

IMDG	:	6.1
IATA	:	6.1

14.4 Packing group

IMDG

Packing group	:	II
Labels	:	6.1 (3)
EmS Code	:	F-E, S-D

IATA (Cargo)

Packing instruction (cargo aircraft)	:	662
Packing instruction (LQ)	:	Y641
Packing group	:	II
Labels	:	Toxic, Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft)	:	654
Packing instruction (LQ)	:	Y641
Packing group	:	II
Labels	:	Toxic, Flammable Liquids

14.5 Environmental hazards

IMDG

Marine pollutant	:	yes

IATA (Passenger)

Environmentally hazardous	:	yes

IATA (Cargo)

Environmentally hazardous	:	yes

14.6 Special precautions for user

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

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

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

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	Product contains substance(s) not listed on TSCA inventory.
AIIC	:	Not in compliance with the inventory
DSL	:	This product contains the following components that are not on the Canadian DSL nor NDSL. 2,3-DIHYDRO-2,2-DIMETHYLBENZOFURAN-7-YL (DIBUTYLAMINTHIO)METHYLCARBAMATE
ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	Not in compliance with the inventory

15.2 Chemical Safety Assessment

SECTION 16: Other information

Full text of H-Statements

H226	:	Flammable liquid and vapor.
H301	:	Toxic if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H317	:	May cause an allergic skin reaction.
H330	:	Fatal if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H340	:	May cause genetic defects.
H350	:	May cause cancer.
H370	:	Causes damage to organs.
H372	:	Causes damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	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
Carc.	:	Carcinogenicity

Flam. Liq.	:	Flammable liquids
Muta.	:	Germ cell mutagenicity
Skin Sens.	:	Skin sensitization
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure

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

Other information :

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Acute Tox. 3	H301	Based on product data or assessment
Acute Tox. 3	H331	Based on product data or assessment
Eye Irrit. 2	H319	Based on product data or assessment
Skin Sens. 1B	H317	Based on product data or assessment
Muta. 1B	H340	Calculation method
Carc. 2	H351	Based on product data or assessment
STOT SE 1	H370	Based on product data or assessment
STOT SE 3	H336	Calculation method

STOT SE 3	H335	Calculation method
STOT RE 1	H372	Based on product data or assessment
Asp. Tox. 1	H304	Based on product data or assessment
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

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