

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Carbosulfan 200 g/L EC

Other means of identification : MARSHAL 200 EC

Recommended use of the chemical and restrictions on use

Recommended use : Can be used as insecticide only.

Restrictions on use : Use as recommended by the label.

Manufacturer or supplier's details

Address : FMC Corporation
2929 WALNUT ST
PHILADELPHIA PA 19104
USA

Telephone : (215) 299-6000

E-mail address : SDS-Info@fmc.com

Emergency telephone : For leak, fire, spill or accident emergencies, call:
001-803-017-9114 (CHEMTREC)
1 703 / 741-5970 (CHEMTREC - International)

Medical emergency:
0800 140 1447

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 2

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2A

Carcinogenicity : Category 2

Specific target organ toxicity - : Category 1

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

single exposure

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

Specific target organ toxicity - : Category 1
repeated exposure

Aspiration hazard : Category 1

Short-term (acute) aquatic : Category 1
hazard

Long-term (chronic) aquatic : Category 1
hazard

GHS label elements

Hazard pictograms :   

Signal Word : Danger

Hazard Statements : H301 Toxic if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe 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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:

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

Disposal:

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

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Solvent naphtha (petroleum), heavy arom.	64742-94-5	>= 60 -<= 100
carbosulfan (ISO)	55285-14-8	>= 10 -< 25
calcium dodecylbenzenesulphonate	26264-06-2	>= 3 -< 10
Nonylphenol, ethoxylated	9016-45-9	>= 0,25 -< 2,5
2-methylpropan-1-ol	78-83-1	>= 1 -< 3

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

In case of skin contact : If skin irritation persists, call a physician.

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

- 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.
- Most important symptoms and effects, both acute and delayed : Toxic if swallowed.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye irritation.
Fatal if inhaled.
May cause drowsiness or dizziness.
Suspected of causing cancer.
Causes damage to organs.
Causes damage to organs through prolonged or repeated exposure.
- Notes to physician : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
Water spray
Dry chemical
Regular foam
- Unsuitable extinguishing media : High volume water jet
- 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 (NO_x)
- Specific extinguishing methods : 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.

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas.

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.

Methods and materials for containment and 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).
Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Keep away from open flames, hot surfaces and sources of ignition.

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.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Prevent unauthorized access.
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.

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version 1.2 Revision Date: 2022/08/26 SDS Number: 50000742 Date of last issue: -
Date of first issue: 2022/08/26

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Solvent naphtha (petroleum), heavy arom.	64742-94-5	TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
2-methylpropan-1-ol	78-83-1	NAB	50 ppm 152 mg/m ³	ID OEL
		TWA	50 ppm	ACGIH

Personal protective equipment

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

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

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

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

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

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : yellowish-brown

Odor : Non-irritating

pH : 8
In a 1% aqueous dispersion

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version 1.2	Revision Date: 2022/08/26	SDS Number: 50000742	Date of last issue: - Date of first issue: 2022/08/26
----------------	------------------------------	-------------------------	----------------------------------------------------------

Flash point	:	65 °C
		Method: closed cup
Flammability (liquids)	:	Not highly flammable
Self-ignition	:	No data available
Density	:	0,94 g/cm ³ (20 °C)
Solubility(ies)	:	
Water solubility	:	emulsifiable
Viscosity	:	
Viscosity, dynamic	:	2 mPa.s (20 °C)
		4 mPa.s (40 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	The product is not oxidizing.

10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed. Vapors may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Strong oxidizing agents Strong acids and strong bases
Hazardous decomposition products	:	Nitrogen oxides (NO _x) Carbon oxides Sulfur oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Toxic if swallowed.
Fatal if inhaled.

Product:

Acute oral toxicity	:	LD50 (Rat, male and female): 100 mg/kg
Acute inhalation toxicity	:	LC50 (Rat, female): 1,10 mg/l Exposure time: 1 h Test atmosphere: dust/mist

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

LC50 (Rat, male): 2,23 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2.000 mg/kg

Components:

Solvent naphtha (petroleum), heavy arom.:

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,28 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

carbosulfan (ISO):

Acute oral toxicity : LD50 (Rat, female): 185 mg/kg

Acute inhalation toxicity : LC50 (Rat, female): 0,15 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg

calcium dodecylbenzenesulphonate:

Acute oral toxicity : LD50 (Rat, male and female): 1.300 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : Remarks: Not classified

Acute dermal toxicity : LD50 (Rat, male and female): > 2000 milligram per kilogram
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

Nonylphenol, ethoxylated:

Acute oral toxicity : LD50 (Mouse, male and female): 4.290 mg/kg
Method: Regulation (EC) No. 440/2008, Annex, B.1 bis
Remarks: Based on data from similar materials

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Assessment: The component/mixture is moderately toxic after single ingestion.

2-methylpropan-1-ol:

Acute oral toxicity : LD50 (Rat): 3.350 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 18,18 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 2.460 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Product:

Species : Rabbit
Result : Skin irritation

Remarks : May cause skin irritation in susceptible persons.

Components:

Solvent naphtha (petroleum), heavy arom.:

Species : Rabbit
Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

carbosulfan (ISO):

Species : Rabbit
Result : slight irritation

calcium dodecylbenzenesulphonate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

Nonylphenol, ethoxylated:

Species : Rabbit
Method : Regulation (EC) No. 440/2008, Annex, B.40
Result : Skin irritation

2-methylpropan-1-ol:

Species : Rabbit
Result : Skin irritation

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days
Remarks	:	May cause irreversible eye damage.

Components:

Solvent naphtha (petroleum), heavy arom.:

Species	:	Rabbit
Result	:	No eye irritation
Remarks	:	Based on data from similar materials

carbosulfan (ISO):

Species	:	Rabbit
Result	:	slight irritation

calcium dodecylbenzenesulphonate:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 405
Remarks	:	Based on data from similar materials

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 405

Nonylphenol, ethoxylated:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days
Method	:	Regulation (EC) No. 440/2008, Annex, B.5
Remarks	:	Based on data from similar materials

2-methylpropan-1-ol:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

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

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Components:

Solvent naphtha (petroleum), heavy arom.:

Test Type	:	Buehler Test
Species	:	Guinea pig
Result	:	Does not cause skin sensitization.
Remarks	:	Based on data from similar materials

carbosulfan (ISO):

Test Type	:	Buehler Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.

calcium dodecylbenzenesulphonate:

Test Type	:	Maximization Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.
Remarks	:	Based on data from similar materials

Nonylphenol, ethoxylated:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	Regulation (EC) No. 440/2008, Annex, B.6
Result	:	Does not cause skin sensitization.
Remarks	:	Based on data from similar materials

2-methylpropan-1-ol:

Routes of exposure	:	Skin contact
Result	:	Not a skin sensitizer.

Germ cell mutagenicity

Not classified based on available information.

Components:

Solvent naphtha (petroleum), heavy arom.:

Genotoxicity in vitro	:	Test Type: reverse mutation assay
		Result: negative
		Remarks: Based on data from similar materials

Genotoxicity in vivo	:	Test Type: sister chromatid exchange assay
		Species: Mouse
		Application Route: Intraperitoneal injection
		Result: negative
		Remarks: Based on data from similar materials

carbosulfan (ISO):

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version 1.2	Revision Date: 2022/08/26	SDS Number: 50000742	Date of last issue: - Date of first issue: 2022/08/26
----------------	------------------------------	-------------------------	----------------------------------------------------------

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

calcium dodecylbenzenesulphonate:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: chromosome aberration assay
Species: Rat (male and female)
Application Route: Oral
Exposure time: 90 d
Result: negative
Remarks: Based on data from similar materials

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Nonylphenol, ethoxylated:

Genotoxicity in vitro : Test Type: gene mutation test
Test system: Salmonella typhimurium
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Germ cell mutagenicity - Assessment : In vitro tests did not show mutagenic effects

2-methylpropan-1-ol:

Genotoxicity in vitro : Result: negative

Genotoxicity in vivo : Result: negative

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Carcinogenicity

Suspected of causing cancer.

Product:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Components:

Solvent naphtha (petroleum), heavy arom.:

Species	: Mouse
Application Route	: Dermal
Exposure time	: 104 weeks
Result	: negative
Remarks	: Based on data from similar materials

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

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

calcium dodecylbenzenesulphonate:

Species	: Rat, male and female
Application Route	: Oral
Exposure time	: 720 d
NOAEL	: 250 mg/kg body weight
Result	: negative
Remarks	: Based on data from similar materials

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

Reproductive toxicity

Not classified based on available information.

Components:

Solvent naphtha (petroleum), heavy arom.:

Effects on fertility	: Test Type: Fertility
	Species: Rat, male and female
	Application Route: Oral

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Method: OECD Test Guideline 415
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

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

calcium dodecylbenzenesulphonate:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Rat, male and female
Application Route: Ingestion
General Toxicity Parent: NOAEL: 400 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Ingestion
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Developmental Toxicity: NOAEL: 600 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

2-methylpropan-1-ol:

Effects on fertility : Species: Rat
Application Route: Inhalation
Fertility: NOAEC Mating/Fertility: 7,5 mg/l

STOT-single exposure

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:

Solvent naphtha (petroleum), heavy arom.:

Assessment : May cause drowsiness or dizziness.

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.

2-methylpropan-1-ol:

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.

Repeated dose toxicity

Components:

Solvent naphtha (petroleum), heavy arom.:

Species : Rat, male and female
NOAEL : 750 mg/kg
Application Route : Oral - gavage

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Exposure time : 90 day
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : 1 mg/l
LOAEL : 0,5 mg/l
Application Route : inhalation (vapor)
Exposure time : 90 day
Symptoms : Alpha-2u-globulin nephropathy

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

calcium dodecylbenzenesulphonate:

Species : Rat, male and female
NOAEL : 85 mg/kg
LOAEL : 145 mg/kg
Application Route : Oral
Exposure time : 9 Months
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : 100 mg/kg
LOAEL : 200 mg/kg
Application Route : Oral
Exposure time : 28 Days
Method : OECD Test Guideline 422
Remarks : Based on data from similar materials

Species : Rat, male
LOAEL : 286 mg/kg
Application Route : Skin contact
Exposure time : 15 Days
Remarks : Based on data from similar materials

2-methylpropan-1-ol:

Species : Rat
LOAEL : 1450 mg/kg
Application Route : Oral

Species : Rat
LOAEL : 7,5 mg/l
Application Route : Inhalation

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

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:

Solvent naphtha (petroleum), heavy arom.:

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.

carbosulfan (ISO):

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

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.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

Components:

Solvent naphtha (petroleum), heavy arom.:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: water accommodated fractions (WAF)

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 1,4 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: water accommodated fractions (WAF)

Toxicity to algae/aquatic : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 - 3

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version 1.2	Revision Date: 2022/08/26	SDS Number: 50000742	Date of last issue: - Date of first issue: 2022/08/26
----------------	------------------------------	-------------------------	----------------------------------------------------------

plants mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: water accommodated fractions (WAF)

Toxicity to microorganisms : LL50 (Tetrahymena pyriformis): 677,9 mg/l
Exposure time: 72 h
Test Type: Growth inhibition

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 (Pimephales promelas (fathead minnow)): 0,00828 mg/l
Exposure time: 21 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0,0032 mg/l
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to terrestrial organisms : (Apis mellifera (bees)): 1,035 µg/bee
Remarks: Oral

(Apis mellifera (bees)): 0,18 µg/bee
Remarks: Contact

LD50 (Anas platyrhynchos (Mallard duck)): 10 mg/kg

calcium dodecylbenzenesulphonate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 10 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

LC50 (Pimephales promelas (fathead minnow)): 4,6 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3,5 mg/l
Exposure time: 48 h

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

		Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	NOEC (Pseudokirchneriella subcapitata (green algae)): 7,9 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
		EC50 (Pseudokirchneriella subcapitata (green algae)): 65,4 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1,65 mg/l Exposure time: 21 d Remarks: Based on data from similar materials
		NOEC (Daphnia magna (Water flea)): 1,18 mg/l Exposure time: 21 d Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC50 (activated sludge): 500 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): 1.000 mg/kg Exposure time: 14 d Method: OECD Test Guideline 207
Toxicity to terrestrial organisms	:	LD50 (Colinus virginianus (Bobwhite quail)): 1.356 mg/kg Exposure time: 14 d Method: OECD Test Guideline 223
Nonylphenol, ethoxylated:		
Toxicity to daphnia and other aquatic invertebrates	:	LC50: 1,821 mg/l Exposure time: 48 h Method: QSAR
		EC50 (Daphnia magna (Water flea)): 14 mg/l End point: Immobilization Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 20 mg/l Exposure time: 48 h Method: Regulation (EC) No. 440/2008, Annex, C.3 Remarks: Based on data from similar materials
		EC50 (Pseudokirchneriella subcapitata (green algae)): 50 mg/l Exposure time: 48 h Method: Regulation (EC) No. 440/2008, Annex, C.3 Remarks: Based on data from similar materials

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Japanese medaka)): 0,035 mg/l
End point: morphology
Exposure time: 100 d
Test Type: Renewal

2-methylpropan-1-ol:

Toxicity to fish : LC50: 1.430 mg/l
Exposure time: 4 d

Toxicity to daphnia and other aquatic invertebrates : EC50: 1.100 mg/l
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 20 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50 (Anabaena flos-aquae (cyanobacterium)): 593 - 1.799 mg/l
Exposure time: 72 h

IC50 (Natural microorganism): 1.000 mg/l
Exposure time: 16 h

Persistence and degradability

Components:

Solvent naphtha (petroleum), heavy arom.:

Biodegradability : Result: Inherently biodegradable.
Biodegradation: 58,6 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

carbosulfan (ISO):

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 28 %
Exposure time: 28 d

Stability in water : Remarks: Hydrolyzes readily.

calcium dodecylbenzenesulphonate:

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

Nonylphenol, ethoxylated:

Biodegradability : Result: Readily biodegradable.

2-methylpropan-1-ol:

Biodegradability : Result: Readily biodegradable.

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

Bioaccumulative potential

Components:

Solvent naphtha (petroleum), heavy arom.:

Partition coefficient: n-octanol/water : log Pow: 1,99 - 18,02
Method: QSAR

carbosulfan (ISO):

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 990
Remarks: Can accumulate in aquatic organisms.

Partition coefficient: n-octanol/water : log Pow: 7,42

calcium dodecylbenzenesulphonate:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 70,79
Method: QSAR

Partition coefficient: n-octanol/water : log Pow: 4,77 (25 °C)

Nonylphenol, ethoxylated:

Partition coefficient: n-octanol/water : Pow: 3,7 (25 °C)
Method: OECD Test Guideline 117

2-methylpropan-1-ol:

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow <= 4).

Partition coefficient: n-octanol/water : Pow: 10 (25 °C)

Mobility in soil

Components:

carbosulfan (ISO):

Distribution among environmental compartments : Remarks: immobile

Other adverse effects

Product:

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.

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : 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.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

- UN number : UN 2992
Proper shipping name : CARBAMATE PESTICIDE, LIQUID, TOXIC (Carbosulfan)
Class : 6.1
Packing group : II
Labels : 6.1

IATA-DGR

- UN/ID No. : UN 2992
Proper shipping name : Carbamate pesticide, liquid, toxic (Carbosulfan)
Class : 6.1
Packing group : II
Labels : Toxic
Packing instruction (cargo aircraft) : 662
Packing instruction (passenger aircraft) : 654

IMDG-Code

- UN number : UN 2992
Proper shipping name : CARBAMATE PESTICIDE, LIQUID, TOXIC (Carbosulfan)
Class : 6.1
Packing group : II
Labels : 6.1
EmS Code : F-A, S-A
Marine pollutant : yes

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

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

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

15. REGULATORY INFORMATION

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

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances Hazardous to Health

Hazardous substances that must be registered : Not applicable

Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances

Hazardous substances approved for use : Not applicable

Prohibited substances : Not applicable

Restricted substances : Not applicable

Regulation of the Minister of Trade No. 44 of 2009 on Procurement, Distribution and Supervision of Hazardous Materials

Type of Hazardous Materials Restricted to Import, Distribution and Supervision : Not applicable

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

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

IECSC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	Not in compliance with the inventory

16. OTHER INFORMATION

Revision Date	:	2022/08/26
Date format	:	yyyy/mm/dd

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ID OEL	:	Indonesia. Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
ID OEL / NAB	:	Long term exposure limit

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

Disclaimer

FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. You can contact FMC Corporation to

SAFETY DATA SHEET



Carbosulfan 200 g/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.2	2022/08/26	50000742	Date of first issue: 2022/08/26

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