

Material group	1092	Page 1 of 14
Product name	RUGBY® 10 G	February 2019
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes June 2018

SAFETY DATA SHEET

RUGBY® 10 G

Revision: Sections containing a revision or new information are marked with a ♣.

♣ SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1. **Product identifier** **Rugby® 10 G**
Contains cadusafos and diethylene glycol
- 1.2. **Relevant identified uses of the substance or mixture and uses advised against** Can be used as insecticide only.
- 1.3. **Details of the supplier of the safety data sheet** **CHEMINOVA A/S**, a subsidiary of FMC Corporation
 Thyborønvej 78
 DK-7673 Harboøre
 Denmark
SDS.Ronland@fmc.com
- Local contact (South Africa) -** **FMC Chemicals (Pty) Ltd**
 Pegasus Building 1, Floor 2
 210 Amarand Ave
 Menlyn
 Pretoria, 0181
 South Africa
- 1.4. **Emergency telephone number**..... **For any emergency or poisoning contact:**
 Griffon Poison Information Centre (24 hrs)
 +27-(0)-82-446-8946
- For fire, leak, spill or other accident emergencies**
 +1 703 / 527 3887 (CHEMTREC - Collect)

♣ SECTION 2: HAZARDS IDENTIFICATION

- 2.1. **Classification of the substance or mixture** Acute oral toxicity: Category 4 (H302)
 Acute dermal toxicity: Category 2 (H310)
 Sensitisation - skin: Category 1 (H317)
 Hazards to the aquatic environment, acute: Category 1 (H400)
- WHO classification Class II: Moderately hazardous
- Health hazards The product is toxic by skin contact and harmful by ingestion. It may cause skin sensitisation.

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The active ingredient **cadusafos** is a poison (cholinesterase inhibitor). It rapidly enters the body on contact with all skin surfaces and eyes.

Repeated exposures to cholinesterase inhibitors such as **cadusafos** may, without warning, cause increased susceptibility to doses of any cholinesterase inhibitor.

Environmental hazards The product is very toxic to aquatic organisms.

2.2. Label elements

According to EU Reg. 1272/2008 as amended

Product identifier Rugby 10 G
 Contains cadusafos and diethylene glycol

Hazard pictograms (GHS05, GHS09)



Signal word Danger

Hazard statements

H302 Harmful if swallowed.
 H310 Fatal in contact with skin.
 H317 May cause an allergic skin reaction.
 H400 Very toxic to aquatic life.

Supplementary hazard statement

EUH401 To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements

P264 Wash thoroughly after handling.
 P280 Wear protective gloves, protective clothing and eye protection.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
 P501 Dispose of contents/container as hazardous waste.

2.3. Other hazards None of the ingredients in the product meets the criteria for being PBT or vPvB.

♣ SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances The product is a mixture, not a substance.

3.2. Mixtures See section 16 for full text of hazard statements.

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Active ingredient

Cadusafos	Content: 10% by weight
CAS name	Phosphorodithioic acid, O-ethyl S,S-bis(1-methylpropyl) ester
CAS no.	95465-99-9
IUPAC name	S,S-Di-sec-butyl O-ethyl phosphorodithioate
ISO name/EU name	Cadusafos
EC no. (EINECS no.)	None
EU index no.	None
Molecular weight	280.4
Classification of the ingredient	Acute oral toxicity: Category 2 (H300) Acute dermal toxicity: Category 1 (H310) Acute inhalation toxicity: Category 1 (H330) Hazards to the aquatic environment, acute: Category 1 (H400)

Reportable ingredient

	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification
Diethylene glycol	3	111-46-6	203-872-2	Acute Tox. 4 (H302)

♣ SECTION 4: FIRST AID MEASURES

- 4.1. Description of first aid measures** If exposure has occurred, do not wait for symptoms to develop, but immediately start the procedures described below.
- Inhalation** If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.
- If breathing has stopped, immediately start artificial respiration and maintain until a physician takes charge of the exposed person.
- Skin contact** Immediately remove contaminated clothing and footwear. Flush skin with much water. Wash with water and soap. See physician immediately if symptoms develop.
- Eye contact** Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. See physician immediately.
- Ingestion** Call a doctor or get medical attention immediately. Make the exposed person rinse mouth and then drink 1 or 2 glasses of water or milk. Induce vomiting only if:
1. a significant amount (more than a mouthful) has been ingested
 2. patient is fully conscious
 3. medical aid is not readily available
 4. time since ingestion is less than one hour.
- Let the patient induce vomiting by touching the back of the throat with a finger. If vomiting occurs, take care that vomit does not enter airways. Let the exposed person rinse mouth and drink fluids again.

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4.2. Most important symptoms and effects, both acute and delayed

Symptoms of cholinesterase inhibition: nausea, headache, vomiting, cramps, weakness, blurred vision, pin-point pupils, tightness in chest, laboured breathing, nervousness, sweating, watering of eyes, drooling or frothing of mouth and nose, muscle spasms and coma.

4.3. Indication of any immediate medical attention and special treatment needed

If any of the signs of cholinesterase inhibition occurs, call a doctor (physician), clinic or hospital immediately. Explain that the victim has been exposed to **cadusafos**, an organophosphorus insecticide. Describe his/her condition and the extent of exposure. Immediately remove the exposed person from the area where the product is present.

In an industrial setting the antidote atropine sulphate should be available at the workplace.

It may be helpful to show this safety data sheet to physician.

Notes to physician

Cadusafos is a cholinesterase inhibitor affecting the central and peripheral nervous systems producing respiratory depression.

Cholinesterase inhibition – treatment

Much information on (acetyl)cholinesterase inhibition by organophosphate insecticides and its treatment can be found on the internet.

Decontamination procedures such as whole body washing, gastric lavage and administration of activated charcoal are often required.

Antidote: If symptoms (see subsection 4.2.) are present, administer atropine sulphate, which often is a lifesaving antidote, in large doses, TWO to FOUR mg intravenously or intramuscularly as soon as possible. Repeat at 5 to 10 minute intervals until signs of atropinisation appear and maintain full atropinisation until all organophosphate is metabolised.

Obidoxime chloride (Toxogonin), alternatively pralidoxime chloride (2-PAM), may be administered as an adjunct to, but not a substitute for atropine sulphate. Treatment with oxime should be maintained as long as atropine sulphate is administered.

At first sign of pulmonary oedema the patient should be given supplementary oxygen and treated symptomatically.

Relapse can occur after initial improvement.
VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS, DEPENDING ON THE SEVERITY OF POISONING.

♣ SECTION 5: FIRE-FIGHTING MEASURES
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5.1. Extinguishing media

Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.

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- 5.2. **Special hazards arising from the substance or mixture** The essential breakdown products are volatile, malodorous, toxic, irritant and inflammable compounds such as hydrogen sulphide, dialkyl sulphides, alkyl mercaptans, sulphur dioxide, carbon monoxide, carbon dioxide and phosphorus pentoxide.
- 5.3. **Advice for firefighters** Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

♣ SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. **Personal precautions, protective equipment and emergency procedures** It is recommended to have a predetermined plan for the handling of spills. Empty, sealable vessels for the collection of spills should be available.
- In case of large spill (involving 1 tonne of the product or more):
1. use personal protection equipment; see section 8
 2. call emergency telephone no.; see section 1
 3. alert authorities.
- Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and boots.
- Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area. Remove sources of ignition. Avoid and reduce dust formation as much as possible.
- 6.2. **Environmental precautions** Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.
- 6.3. **Methods and materials for containment and cleaning up** It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).
- If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should immediately be swept up or preferably vacuumed up using equipment with high efficiency final filter. Transfer to suitable containers. Clean area with soda lye and much water. Absorb wash liquid onto inert absorbent such as universal binder, Fuller's earth, bentonite or other absorbent clay and collect in suitable containers. The used containers should be properly closed and labelled.

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Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

6.4. **Reference to other sections** See subsection 8.2. for personal protection.
 See section 13 for disposal.

♣ SECTION 7: HANDLING AND STORAGE
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7.1. **Precautions for safe handling** In an industrial environment it is important to avoid all personal contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.

Keep all unprotected persons and children away from working area.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

Do not discharge to the environment. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

7.2. **Conditions for safe storage, including any incompatibilities** The product is stable under normal conditions of warehouse storage.

Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

7.3. **Specific end use(s)** The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

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♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Personal exposure limits

		Year	
Cadosafos	ACGIH (USA) TLV	2015	Not established; BEI
	OSHA (USA) PEL	2015	Not established
	EU, 2000/39/EC as amended	2009	Not established
	Germany, MAK	2014	Not established; BAT
	HSE (UK) WEL	2011	Not established
Diethylene glycol	ACGIH (USA) TLV	2015	Not established
	OSHA (USA) PEL	2015	Not established
	EU, 2000/39/EC as amended	2009	Not established
	Germany, MAK	2014	TWA 10 mg/m ³ (44 ppm) Peak level 40 mg/m ³ (176 ppm)
	HSE (UK) WEL	2011	20 mg/m ³ (101 ppm)

However, other personal exposure limits defined by local regulations may exist and must be observed.

Monitoring methods Persons working with this product for a longer period should have frequent blood tests of their cholinesterase levels. If the cholinesterase level falls below a critical point, no further exposure should be allowed until it has been determined by means of blood tests that the cholinesterase level has returned to normal.

Cadosafos
 DNEL, dermal 0.001 mg/kg bw/day
 PNEC, aquatic environment 0.0008 mg/l

Diethylene glycol
 DNEL, systemic, inhalation 44 mg/m³
 DNEL, systemic, dermal 434 mg/kg bw/day
 PNEC, freshwater 10 mg/l
 PNEC, marine water 1 mg/l

8.2. Exposure controls When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.

In cases of incidental high exposure, maximal personal protection may

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be necessary, such as respirator, face mask, chemical resistant coveralls.



Respiratory protection

In the event of an accidental discharge of the material which produces a heavy vapour or dust, workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.



Protective gloves

Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber. The breakthrough times of these materials for the product are unknown. Generally, however, the use of protective gloves will give only partial protection against dermal exposure. Small tears in the gloves and cross-contamination can easily occur. It is recommended to shift the gloves frequently and to limit the work to be done manually.



Eye protection

Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.



Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of excessive or prolonged exposure, coveralls of barrier laminate may be required.

♣ SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical and chemical properties

Appearance	Dark brown to black solid (granules)
Odour	Ester-like
Odour threshold	Not determined
pH	0.5% dispersion in water: 7.34
Melting point/freezing point	Not determined
Initial boiling point and boiling range	Not determined
Flash point	Not determined
Evaporation rate	Not determined
Flammability (solid/gas)	Not highly flammable
Upper/lower flammability or explosive limits	Not determined
Vapour pressure	Cadusafos : 1.2 x 10 ⁻⁵ Pa at 25°C
Vapour density	Not determined
Relative density	0.81 - 0.89
Solubility(ies)	Solubility of cadusafos at 25°C in:
	methanol > 250 g/kg
	heptane 125 g/kg

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Partition coefficient n-octanol/water	water	245 mg/l
Autoignition temperature	Cadusafos	: log K_{ow} = 3.85 at 20°C and pH 5.5
Decomposition temperature	Cadusafos	: 270°C
Viscosity	Not determined	
Explosive properties.....	Not explosive	
Oxidising properties	Not oxidising	

9.2. **Other information**

Miscibility The product is emulsifiable in water.

♣ SECTION 10: STABILITY AND REACTIVITY

- 10.1. **Reactivity** To our knowledge, the product has no special reactivities.
- 10.2. **Chemical stability** The product (**cadusafos**) may decompose rapidly when heated, which can result in explosion. It is recommended not to heat the product. Direct local heating such as electric heating or by steam must be avoided.
- The decomposition is to a considerable extent dependent on time as well as temperature due to self-accelerating exothermic and autocatalytic reactions. The reactions involve rearrangements and polymerisation releasing volatile malodorous and inflammable compounds such as dialkyl sulphides and alkyl mercaptans.
- 10.3. **Possibility of hazardous reactions** None known.
- 10.4. **Conditions to avoid** Heating of the product will produce harmful and irritant vapours.
- 10.5. **Incompatible materials** Strong alkalis and strong oxidising compounds. The product can corrode metals (but does not meet the criteria for classification).
- 10.6. **Hazardous decomposition products** See subsection 5.2.

♣ SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. **Information on toxicological effects** * = Based on available data, the classification criteria are not met.

Product

Acute toxicity		The product is toxic by skin contact and harmful by ingestion. The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD ₅₀ , oral, rat: 391 mg/kg
	- skin	LD ₅₀ , dermal, rat: 143 mg/kg
	- inhalation	LC ₅₀ , inhalation, rat: > 0.031 ppm/4 h *
Skin corrosion/irritation		Not irritating to skin. *
Serious eye damage/irritation		Not irritating to eyes. *

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Respiratory or skin sensitisation ...	May cause skin sensitisation.
Germ cell mutagenicity	The product contains no ingredient found to be mutagenic. *
Carcinogenicity	The product contains no ingredient found to be carcinogenic. *
Reproductive toxicity	The product contains no ingredient found to have adverse effects on reproduction. *
STOT – single exposure	To our knowledge, no specific effects have been observed after single exposure. *
STOT – repeated exposure	The following is found for the active ingredient cadusafos: Target organ: nervous system (cholinesterase inhibition) NOAEL: 0.067 mg/kg bw/day in a 90-day rat study, based on decreased cholinesterase activity in red blood cells at higher levels.
Aspiration hazard	The product does not present an aspiration pneumonia hazard. *
Symptoms and effects, acute and delayed	On contact, the first symptoms to appear may be irritation and allergic reactions. Symptoms of cholinesterase inhibition: nausea, headache, vomiting, cramps, weakness, blurred vision, pin-point pupils, tightness in chest, laboured breathing, nervousness, sweating, watering of eyes, drooling or frothing of mouth and nose, muscle spasms and coma.

Cadusafos

Toxicokinetics, metabolism and distribution

Cadusafos is rapidly absorbed and excreted following oral administration. It is widely distributed in the body and extensively metabolised. Excretion is rapid as well. There is no evidence for accumulation.

Acute toxicity	The substance is very toxic. The acute toxicity is measured as:
Route(s) of entry	
- ingestion	LD ₅₀ , oral, rat (female): 30.1 mg/kg
- skin	LD ₅₀ , dermal, rat (female): 10.7 mg/kg
- inhalation	LC ₅₀ , inhalation, rat (female): 0.026 mg/l/4 h
Skin corrosion/irritation	Not irritating to skin. *
Serious eye damage/irritation	Not irritating to eyes. *
Respiratory or skin sensitisation ...	Not sensitising. *

Diethylene glycol

Toxicokinetics, metabolism and distribution

After oral intake, diethylene glycol is rapidly absorbed and widely distributed in the body. It is extensively metabolised and diethylene glycol and its metabolites are rapidly excreted. Its harmful effects appear to be caused by the metabolites glycolic acid and oxalic acid.

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Acute toxicity		The substance is harmful by ingestion, but is not considered as harmful by skin contact or inhalation. The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD ₅₀ , oral, rat (male): 19 600 mg/kg
	- skin	LD ₅₀ , dermal, rat: 13 300 mg/kg
	- inhalation	LC ₅₀ , inhalation, rat: > 4.6 mg/l/4 h
		The substance appears to be more harmful to humans.
Skin corrosion/irritation		Not irritating. *
Serious eye damage/irritation		Not irritating. *
Respiratory or skin sensitisation ...		Not sensitising (EU method B.6). *

♣ SECTION 12: ECOLOGICAL INFORMATION

12.1. **Toxicity** The product is very toxic to aquatic organisms and to insects. It is toxic birds.

The following has been measured on the active ingredient **cadusafos**:

- Fish	Rainbow trout (<i>Salmo gairdneri</i>)	96-h LC ₅₀ : 0.13 mg/l 95-day NOEC: 5.2 µg/l
- Invertebrates	Daphnids (<i>Daphnia magna</i>)	48-h EC ₅₀ : 0.75 µg/l 21-day NOEC: 0.231 µg/l
- Algae	Green algae (<i>Scenedesmus subspicatus</i>)	72-h E _r C ₅₀ : 5.7 mg/l
- Birds	Bobwhite quail	LD ₅₀ : 16.1 mg/kg
- Bees	Honeybee (<i>Apis mellifera</i>)	LC ₅₀ , contact: 1.80 µg/bee LC ₅₀ , oral: 2.07 µg/bee

12.2. **Persistence and degradability** The active ingredient **cadusafos** is not readily biodegradable. It undergoes slow degradation in the environment and in waste water treatment plants. Primary degradation half-lives in soil vary with circumstances from a few weeks to two months.

The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

12.3. **Bioaccumulative potential** See section 9 for octanol-water partition coefficients.

The active ingredient **cabusafos** is not to bioaccumulate; it is rapidly metabolised and excreted. Bioconcentration Factor (BCF) was measured to 220 for whole fish.

12.4. **Mobility in soil** **Cadusafos** is not expected to be mobile in the environment.

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12.5. **Results of PBT and vPvB assessment** None of the ingredients meets the criteria for being PBT or vPvB.

12.6. **Other adverse effects** Other relevant hazardous effects in the environment are not known.

♣ SECTION 13: DISPOSAL CONSIDERATIONS

13.1. **Waste treatment methods** Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.

Disposal of waste and packagings must always be in accordance with all applicable local regulations.

Disposal of product According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Disposal of packaging It is recommended to consider possible ways of disposal in the following order:
 1. Reuse or recycling should first be considered. Reuse is prohibited except by the authorisation holder. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
 2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
 3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
 4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

♣ SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

- 14.1. **UN number** 2783
- 14.2. **UN proper shipping name** Organophosphorus pesticide, solid, toxic (cadusafos)
- 14.3. **Transport hazard class(es)** 6.1
- 14.4. **Packing group** II
- 14.5. **Environmental hazards** Marine pollutant

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14.6. **Special precautions for user** Avoid any unnecessary contact with the product. Misuse can result in damage to health. Do not discharge to the environment.

14.7. **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code** The product is not transported in bulk by ship.

♣ SECTION 15: REGULATORY INFORMATION

- 15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture** Seveso category (Dir. 2012/18/EU): toxic
 Second Seveso category: dangerous for the environment
 Young people under the age of 18 are not allowed to work with the substance.
 All ingredients are covered by EU chemical legislation.
- 15.2. **Chemical safety assessment** A chemical safety assessment is not required to be included for this product.

♣ SECTION 16: OTHER INFORMATION

- Relevant changes in the safety data sheet Numerous changes have been made to adapt the format of the safety data sheet, but these do not involve new information about hazardous properties.
- List of abbreviations
- ACGIH American Conference of Governmental Industrial Hygienists
 - BAT Biologische Arbeitsstoff-Toleranzwert
 - BEI Biological Exposure Index
 - CAS Chemical Abstracts Service
 - Dir. Directive
 - DNEL Derived No Effect Level
 - EC European Community
 - EC₅₀ 50% Effect Concentration
 - E_rC₅₀ 50% Effect Concentration based on growth
 - EINECS European INventory of Existing Commercial Chemical Substances
 - GHS Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013
 - HSE Health & Safety Executive, UK
 - IBC International Bulk Chemical code
 - ISO International Organisation for Standardization
 - IUPAC International Union of Pure and Applied Chemistry
 - LC₅₀ 50% Lethal Concentration
 - LD₅₀ 50% Lethal Dose
 - MAK Maximale Arbeitsplatz-Konzentration
 - MARPOL Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution
 - NOAEL No Observed Adverse Effect Level
 - NOEC No Observed Effect Concentration

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n.o.s.	Not otherwise specified
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative, Toxic
PEL	Personal Exposure Limit
PNEC	Predicted No Effect Concentration
Reg.	Regulation
STOT	Specific Target Organ Toxicity
TLV	Threshold Limit Value
TWA	Time Weighed Average
vPvB	very Persistent, very Bioaccumulative
WEL	Workplace Exposure Limit
WHO	World Health Organisation

References Data measured on the product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

Method for classification Acute oral toxicity: test data
 Acute dermal toxicity: test data
 Sensitisation - skin: test data
 Hazards to the aquatic environment: calculation method

Used hazard statements H300 Fatal if swallowed.
 H302 Harmful if swallowed.
 H310 Fatal in contact with skin.
 H317 May cause an allergic skin reaction.
 H330 Fatal if inhaled.
 H400 Very toxic to aquatic life.
 EUH401 To avoid risks to human health and the environment, comply with the instructions of use.

Advice on training This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB