SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878

Danafloat™ 527E

Version	Revision Date:	SDS Number:	Date of last issue: 10.05.2023
1.1	20.02.2024	50002005	Date of first issue: 10.05.2023

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

1.1 Product identifier

Product name Danafloat™ 527E

Other means of identification

Product code 50002005

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

Use of the Substance/Mixture : Flotation agents

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

1.3 Details of the supplier of the safety data sheet

Supplier Address

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark

Telephone: +45 9690 9690
Telefax: +45 9690 9691
E-mail address: SDS-Info@fmc.com .

1.4 Emergency telephone number

For leak, fire, spill or accident emergencies, call:
Denmark: +45-69918573 (CHEMTREC)

Medical emergency:
Denmark: +45 82 12 12 12

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 1C	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.

Reproductive toxicity, Category 2	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P261 Avoid breathing mist or vapours.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of the contents/container in accordance with municipal waste management regulations.

Hazardous components which must be listed on the label:

sodium O,O-diisobutyl dithiophosphate
O-isopropyl ethylthiocarbamate
sodium hydroxide

Additional Labelling

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

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.

Ecological information: 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.

Toxicological information: 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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
sodium O,O-diisobutyl dithiophosphate	53378-51-1 258-508-5 01-2119982402-38-0000	Skin Corr. 1C; H314 Eye Dam. 1; H318	>= 39 - < 41
O-isopropyl ethylthiocarbamate	141-98-0 205-517-7 01-2119980723-30-0000	Acute Tox. 4; H302 Skin Irrit. 2; H315 Repr. 2; H361fd Aquatic Chronic 2; H411	>= 18 - < 20
sodium hydroxide	1310-73-2 215-185-5 011-002-00-6	Met. Corr. 1; H290 Skin Corr. 1A; H314 Eye Dam. 1; H318 --- specific concentration limit Skin Corr. 1A; H314 >= 5 % Skin Corr. 1B; H314 2 - < 5 % Skin Irrit. 2; H315 0,5 - < 2 % Eye Irrit. 2; H319 0,5 - < 2 %	>= 0 - < 2
Tristyryl phenol-polyethylene glycol-phosphoric acid ester	114535-82-9	Eye Irrit. 2; H319 Aquatic Chronic 3; H412	>= 0 - < 1

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.
Do not leave the victim unattended.

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

If inhaled : Move to fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water for at least 15 minutes.
Get medical attention if irritation develops and persists.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Drink 1 or 2 glasses of water.
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 : Causes severe skin burns and eye damage.
Causes serious eye damage.
Suspected of damaging fertility. Suspected of damaging the unborn child.

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	:	Dry chemical, CO2, water spray or regular foam.
Unsuitable extinguishing media	:	High volume water jet

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	:	Fire may produce irritating, corrosive and/or toxic gases. Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters	:	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. Use water spray to cool unopened containers. Standard procedure for chemical fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Never return spills in original containers for re-use. Mark the contaminated area with signs and prevent access to unauthorized personnel. Only qualified personnel equipped with suitable protective equipment may intervene. For disposal considerations see section 13.

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	:	Neutralise with acid. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Pick up and transfer to properly labelled containers.
Keep in suitable, closed containers for disposal.
Clean contaminated surface thoroughly.

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	:	Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	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)

Specific use(s)	:	Flotation agents

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
sodium hydroxide	1310-73-2	L	2 mg/m3	DK OEL

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

Substance name	End Use	Exposure routes	Potential health effects	Value
sodium O,O-diisobutyl dithiophosphate	Workers	Inhalation	Long-term systemic effects	2,35 mg/m3
	Workers	Dermal	Long-term systemic effects	0,66 mg/kg
O-isopropyl ethylthiocarbamate	Workers	Inhalation	Long-term systemic effects	0,987 mg/m3
	Workers	Inhalation	Acute systemic effects	7,05 mg/m3
	Workers	Inhalation	Long-term local effects	
	Remarks:No hazard identified			
	Workers	Inhalation	Acute local effects	
	Remarks:No hazard identified			
	Workers	Dermal	Long-term systemic effects	0,28 mg/kg bw/day
	Workers	Dermal	Acute systemic effects	
	Remarks:low hazard (no threshold derived)			
	Workers	Dermal	Long-term local effects	
	Remarks:low hazard (no threshold derived)			
	Workers	Dermal	Acute local effects	
	Remarks:low hazard (no threshold derived)			
	Workers	Eye contact	Local effects	
	Remarks:No hazard identified			

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

Substance name	Environmental Compartment	Value
sodium O,O-diisobutyl dithiophosphate	Fresh water	0,261 mg/l
	Marine water	0,026 mg/l
	Fresh water sediment	
	Marine sediment	
	Soil	
O-isopropyl ethylthiocarbamate	Fresh water	0,02 mg/l
	Marine water	0,002 mg/l

8.2 Exposure controls

Personal protective equipment

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

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.

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	:	No personal respiratory protective equipment normally required.
Protective measures	:	Plan first aid action before beginning work with this product. Always have on hand a first-aid kit, together with proper instructions. Ensure that eye flushing systems and safety showers are located close to the working place. Wear suitable protective equipment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	light brown
Odour	:	sulfur-like
Odour Threshold	:	No data available
Melting point/freezing point	:	-8 - -6 °C
Initial boiling point and boiling range	:	103 °C
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	No flash up to boiling point.
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available

pH	:	12 - 14
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	Miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	1,08 - 1,12 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	No data available
Particle characteristics		
Particle size	:	Not applicable
Particle Size Distribution	:	Not applicable
Shape	:	Not applicable

9.2 Other information

Explosives	:	Not explosive

Oxidizing properties : Non-oxidizing

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.

10.4 Conditions to avoid

Conditions to avoid : Avoid extreme temperatures
Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Avoid strong acids, bases, and oxidizers

10.6 Hazardous decomposition products

See subsection 5.2.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Based on available data, the classification criteria are not met.

Product:

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

Acute inhalation toxicity : LC50 (Rat): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

Components:

O-isopropyl ethylthiocarbamate:

Acute oral toxicity : LD50 Oral (Rat, female): 568 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50 (Rat): 20 mg/l
Exposure time: 4 h

Test atmosphere: vapour

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

Tristyryl phenol-polyethylene glycol-phosphoric acid ester:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Product:

Assessment : Irritating to skin.
Result : Severe skin irritation
Remarks : Causes skin burns.

Components:

O-isopropyl ethylthiocarbamate:

Species : human skin
Assessment : Irritating to skin.
Method : OECD Test Guideline 439
Result : Skin irritation

sodium hydroxide:

Result : Corrosive after 3 minutes or less of exposure

Tristyryl phenol-polyethylene glycol-phosphoric acid ester:

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

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Assessment : Risk of serious damage to eyes.
Result : Severe eye irritation
Remarks : May cause irreversible eye damage.

Components:

O-isopropyl ethylthiocarbamate:

Species : Rabbit
Assessment : Not classified as irritant
Method : OECD Test Guideline 405
Result : slight irritation

sodium hydroxide:

Result : Irreversible effects on the eye

Tristyryl phenol-polyethylene glycol-phosphoric acid ester:

Species : Rabbit
Method : OECD Test Guideline 405
Result : Eye irritation

Respiratory or skin sensitisation

Skin sensitisation

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Product:

Assessment : Does not cause skin sensitisation.
Result : Not a skin sensitizer.

Components:

O-isopropyl ethylthiocarbamate:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : Does not cause skin sensitisation.

sodium hydroxide:

Remarks : substance is corrosive

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:

sodium O,O-diisobutyl dithiophosphate:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative

O-isopropyl ethylthiocarbamate:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Test Type: reverse mutation assay
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

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

sodium hydroxide:

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

Carcinogenicity

Based on available data, the classification criteria are not met.

Components:

sodium hydroxide:

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

Reproductive toxicity

Suspected of damaging fertility. Suspected of damaging the unborn child.

Components:

sodium O,O-diisobutyl dithiophosphate:

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Effects on foetal development : Test Type: Pre-natal
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

O-isopropyl ethylthiocarbamate:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 31, 103, 309 mg/kg/bw/d
General Toxicity - Parent: NOAEL: 31 mg/kg bw/day
General Toxicity F1: LOAEL: 31 mg/l
Symptoms: Reduced embryonic survival
Method: OECD Test Guideline 422
Result: positive

Effects on foetal development : Species: Rat
Application Route: Oral

Dose: 0, 3, 10, 30 mg/kg bw/day
General Toxicity Maternal: NOAEL: 30 mg/kg bw/day
Developmental Toxicity: LOAEL: 10 mg/kg bw/day
Symptoms: Skeletal malformations
Method: OECD Test Guideline 414
Result: positive

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

sodium hydroxide:

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

STOT - single exposure

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Components:

O-isopropyl ethylthiocarbamate:

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

Repeated dose toxicity

Components:

sodium O,O-diisobutyl dithiophosphate:

Species	:	Rat, male and female
NOAEL	:	200 mg/kg
Application Route	:	Oral - gavage
Exposure time	:	28 d
Method	:	OECD Test Guideline 422

O-isopropyl ethylthiocarbamate:

Species	:	Rat, male
NOAEL	:	100 mg/kg
Application Route	:	Oral
Exposure time	:	90d
Dose	:	0, 30, 100, 300 mg/kg bw/day
Method	:	OECD Test Guideline 408

Aspiration toxicity

Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : 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.

Experience with human exposure

Components:

sodium hydroxide:

General Information : Symptoms: corrosive effects

Inhalation : Target Organs: Respiratory Tract
Symptoms: corrosive effects

Skin contact : Target Organs: Skin
Symptoms: corrosive effects

Eye contact : Target Organs: Eyes
Symptoms: corrosive effects

Ingestion : Target Organs: Gastrointestinal tract
Symptoms: corrosive effects

Further information

Product:

Remarks : No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,5 mg/l
Exposure time: 96 h
Remarks: Information refers to the main component.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 60 mg/l
Exposure time: 48 h
Remarks: Information refers to the main component.

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (algae)): 20,7 mg/l
Exposure time: 72 h
Remarks: Information refers to the main component.

NOEC (Pseudokirchneriella subcapitata (green algae)): 1,0 mg/l
Exposure time: 72 h
Remarks: Information refers to the main component.

Components:

sodium O,O-diisobutyl dithiophosphate:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 791 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1.020 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 261 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	(activated sludge): Exposure time: 28 h Method: OECD Test Guideline 301D

O-isopropyl ethylthiocarbamate:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 63 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna Straus): 60 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): 20,8 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (algae)): 1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Tristyryl phenol-polyethylene glycol-phosphoric acid ester:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 100 - 500 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

12.2 Persistence and degradability

Components:

sodium O,O-diisobutyl dithiophosphate:

Biodegradability : Result: Not biodegradable
Biodegradation: 0,4 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

O-isopropyl ethylthiocarbamate:

Biodegradability : Inoculum: activated sludge
Result: Not biodegradable
Method: OECD Test Guideline 301D

Tristyryl phenol-polyethylene glycol-phosphoric acid ester:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 30 - 40 %
Method: OECD Test Guideline 302B

12.3 Bioaccumulative potential

Components:

sodium O,O-diisobutyl dithiophosphate:

Partition coefficient: n-octanol/water : log Pow: 1,67 (22 °C)

O-isopropyl ethylthiocarbamate:

Partition coefficient: n-octanol/water : log Pow: 2,3 (30 °C)

12.4 Mobility in soil

No data available

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 Endocrine disrupting properties

Product:

Assessment : 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.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
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.
According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not possible, 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.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
It is recommended to consider possible ways of disposal in the following order:
1. Reuse or recycling should first be considered. 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

14.1 UN number or ID number

ADN	:	UN 1719
ADR	:	UN 1719
RID	:	UN 1719
IMDG	:	UN 1719
IATA	:	UN 1719

14.2 UN proper shipping name

ADN	:	CAUSTIC ALKALI LIQUID, N.O.S. (Sodium hydroxide, sodium O,O-diisobutyl dithiophosphate, O-isopropyl ethylthiocarbamate)
ADR	:	CAUSTIC ALKALI LIQUID, N.O.S. (Sodium hydroxide, sodium O,O-diisobutyl dithiophosphate, O-isopropyl ethylthiocarbamate)
RID	:	CAUSTIC ALKALI LIQUID, N.O.S. (Sodium hydroxide, sodium O,O-diisobutyl dithiophosphate, O-isopropyl ethylthiocarbamate)
IMDG	:	CAUSTIC ALKALI LIQUID, N.O.S. (Sodium hydroxide, sodium O,O-diisobutyl dithiophosphate, O-isopropyl ethylthiocarbamate)
IATA	:	Caustic alkali liquid, n.o.s. (Sodium hydroxide, sodium O,O-diisobutyl dithiophosphate, O-isopropyl ethylthiocarbamate)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
ADN	:	8	
ADR	:	8	
RID	:	8	
IMDG	:	8	
IATA	:	8	

14.4 Packing group

ADN

Packing group	:	III
Classification Code	:	C5
Hazard Identification Number	:	80
Labels	:	8

ADR

Packing group	:	III
Classification Code	:	C5
Hazard Identification Number	:	80
Labels	:	8
Tunnel restriction code	:	(E)

RID

Packing group	:	III
Classification Code	:	C5
Hazard Identification Number	:	80
Labels	:	8

IMDG

Packing group	:	III
Labels	:	8
EmS Code	:	F-A, S-B

IATA (Cargo)

Packing instruction (cargo aircraft)	:	856
Packing instruction (LQ)	:	Y841
Packing group	:	III
Labels	:	Corrosive

IATA (Passenger)

Packing instruction (passenger aircraft)	:	852
Packing instruction (LQ)	:	Y841
Packing group	:	III
Labels	:	Corrosive

14.5 Environmental hazards

ADN

Environmentally hazardous	:	yes

ADR

Environmentally hazardous	:	yes

RID

Environmentally hazardous	:	yes

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 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E2	ENVIRONMENTAL HAZARDS

Other regulations:

When evaluating a workplace, measures must be taken to ensure that employees are not exposed to conditions that may pose a risk during pregnancy or breastfeeding (cf. The Danish Working Environment Authority's Executive Order on The Performance of Work)

Young people under the age of 18 are not allowed to use or be exposed to the product professionally. Young people above the age of 15 are, however, except from this rule if the product is a necessary part of their education.

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

TCSI	:	Not in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory
AIIC	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL

ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	Not 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

A chemical safety assessment has been performed. The results are attached.

SECTION 16: Other information

Full text of H-Statements

H290	:	May be corrosive to metals.
H302	:	Harmful if swallowed.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H361fd	:	Suspected of damaging fertility. Suspected of damaging the unborn child.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Met. Corr.	:	Corrosive to metals
Repr.	:	Reproductive toxicity
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
DK OEL	:	Denmark. Occupational Exposure Limits
DK OEL / L	:	Ceiling

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; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Skin Irrit. 1C	H314	Based on product data or assessment
Eye Dam. 1	H318	Based on product data or assessment
Repr. 2	H361fd	Based on product data or assessment
Aquatic Chronic 2	H411	Based on product data or assessment

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Prepared by

FMC Corporation

DK / 6N

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

ANNEX: Exposure assessment and related risk characterisation

1. Introduction

1.1. Overview of uses and Exposure Scenarios

The following table lists all the exposure scenarios (ES).

Table 1. Overview of exposure scenarios and contributing scenarios

Identifiers	Titles of exposure scenarios and the related contributing scenarios	Tonnage (tonnes per year)
ES - IW	Use at industrial site - Use at industrial site - Use at industrial site (ERC 6b) - Worker. Flotation batch process with exposure possible (PROC 5) - Worker. Transfer of substance to flotation process, outdoors, with respiratoric protection (PROC 8b) - Worker. Transfer of substance to flotation process, outdoors, with no respiratoric protection, but measured exposure values (PROC 8b) - Worker. Laboratory analytical work on flotation process (PROC 15)	999.0
IW: Industrial end use at site		

1.2. Introduction to the assessment

1.2.1. Environment

Scope and type of assessment

The scope of exposure assessment and type of risk characterisation required for the environment are described in the following table based on the hazard conclusions presented in the CSR.

Table 2. Type of risk characterisation required for the environment

Protection target	Type of risk characterisation	Hazard conclusion
Freshwater	Quantitative	PNEC aqua (freshwater) = 0.02 mg/L
Sediment (freshwater)	Qualitative	No exposure of sediment expected
Marine water	Quantitative	PNEC aqua (marine water) = 0.002 mg/L
Sediment (marine water)	Qualitative	No exposure of sediment expected
Sewage treatment plant	Qualitative	No emission to STP expected
Air	Not needed	No hazard identified
Agricultural soil	Qualitative	No exposure of soil expected
Predator	Not needed	No potential for bioaccumulation

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

Comments on assessment approach:

The regional concentrations are reported in the CSR in section 10.2.1.2 (see Table 54, "Predicted regional exposure concentrations (Regional PEC)"). The local Predicted Exposure Concentrations (PECs) reported for each contributing scenario correspond to the sum of the local concentrations (Clocal) and the regional concentrations (PEC regional).

1.2.2. Man via environment

Scope and type of assessment

The scope of exposure assessment and type of risk characterisation required for man via the environment are described in the following table based on the hazard conclusions reported and justified in the CSR.

Table 1. Type of risk characterisation required for man via the environment

Route of exposure and type of effects	Type of risk characterisation	Hazard conclusion
Inhalation: systemic long-term	Quantitative	DNEL = 29.99 µg/m³
Oral: systemic long-term	Quantitative	DNEL = 17 µg/kg bw/day

1.2.3. Workers

Scope and type of assessment

The scope of exposure assessment and type of risk characterisation required for workers are described in the following table based on the hazard conclusions presented in the CSR.

Table 4. Type of risk characterisation required for workers

Route	Type of effect	Type of risk characterisation	Hazard conclusion
Inhalation	Systemic long-term	Quantitative	DNEL = 118 µg/m³
	Systemic acute	Quantitative	DNEL = 7.05 mg/m³
	Local long-term	Qualitative	Low hazard (no threshold derived)
	Local acute	Qualitative	Low hazard (no threshold derived)
Dermal	Systemic long-term	Quantitative	DNEL = 33.33 µg/kg bw/day
	Systemic acute	Quantitative	DNEL = 2 mg/kg bw/day
	Local long-term	Qualitative	Low hazard (no threshold derived)
	Local acute	Qualitative	Low hazard (no threshold derived)

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

2. Exposure scenario: Use at industrial site

Sector of use:
SU 2a, Mining, (without offshore industries)

Environment contributing scenario(s):	
Use at industrial site	ERC 6b
Worker contributing scenario(s):	
Worker. Flotation batch process with exposure possible	PROC 5
Worker. Transfer of substance to flotation process, outdoors, with respiratoric protection	PROC 8b
Worker. Transfer of substance to flotation process, outdoors, with no respiratoric protection, but measured exposure values	PROC 8b
Worker. Laboratory analytical work on floatation process	PROC 15

2.1. Environmental contributing scenario 1: Use at industrial site

2.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily use at site: ≤ 10 tonnes/day
• Annual use at a site: ≤ 999 tonnes/year
• Percentage of tonnage used at regional scale: 100 %
Conditions and measures related to sewage treatment plant
• Municipal STP: no [effectiveness water: 0%] *No discharge to sewage treatment plant, all waste are either incinerated or led to holding ponds.*
Conditions and measures related to treatment of waste (including article waste)
• Particular considerations on the waste treatment operations: no (low risk) (ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/local legislation is sufficient.)
Other conditions affecting environmental exposure
• Discharge rate of effluent: ≥ 0 m^3/d
• Receiving surface water flow rate: ≥ 0 m^3/d

2.1.2. Releases

The local releases to the environment are reported in the following table.

Table 5. Local releases to the environment

Release	Release factor estimation method	Explanation / Justification
Water	ERC based	**Initial release factor:** 5% **Final release factor:** 5% **Local release rate:** 500 kg/day

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

Release	Release factor estimation method	Explanation / Justification
Air	ERC based	**Initial release factor:** 0.1% **Final release factor:** 0.1% **Local release rate:** 10 kg/day
Soil	ERC based	**Final release factor:** 0.025%

2.1.3. Exposure and risks for the environment and man via the environment

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

Table 6. Exposure concentrations and risks for the environment

Protection target	Exposure concentration	Risk characterisation
Freshwater	**Local PEC:** 2.321E-4 mg/L	RCR = 0.012
Sediment (freshwater)		Qualitative risk characterisation (see below)
Marine water	**Local PEC:** 1.987E-5 mg/L	RCR < 0.01
Sediment (marine water)		Qualitative risk characterisation (see below)
Sewage treatment plant		Qualitative risk characterisation (see below)
Agricultural soil		Qualitative risk characterisation (see below)
Man via environment - inhalation	**Local PEC:** 7.759E-4 mg/m³	RCR = 0.026
Man via environment – oral	**Exposure via food consumption:**	
Man via environment - combined routes		RCR = 0.026

Table 7. Contribution to oral intake for man via the environment from local contribution

Type of food	Estimated daily dose	Concentration in food
Drinking water	3.13E-5 mg/kg bw/day	0.001 mg/L
Fish		
Leaf crops	2.765E-6 mg/kg bw/day	1.613E-4 mg/kg ww
Root crops	1.873E-5 mg/kg bw/day	0.003 mg/kg ww
Meat	3.608E-9 mg/kg bw/day	8.39E-7 mg/kg ww
Milk	1.066E-8 mg/kg bw/day	1.33E-6 mg/kg ww

Conclusion on risk characterisation

There is no exposure to sediment (fresh- and marine water), sewage treatment plant or agricultural soil. Use, transfer and laboratory work does not produce any waste intended to be released into the environment.

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

2.2. Worker contributing scenario 1: Worker. Flotation batch process with exposure possible (PROC 5)

2.2.1. Conditions of use

	Method
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: < 8 hours (avoid carrying out activities involving exposure for more than 8 hours.)	External tool (easyTRA)
• Concentration of substance in a mixture: < 0.01 % w/w *Covers substance in the mixture below 0.01 %.*	External tool (easyTRA)
Conditions and measures related to personal protection, hygiene and health evaluation	
• Dermal protection: yes (chemically resistant gloves conforming to EN374 with specific activity training) [effectiveness dermal: 95%]	External tool (easyTRA)
Other conditions affecting workers exposure	
• Place of use: outdoor	External tool (easyTRA)

2.2.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

Table 8. Exposure concentrations and risks for workers

Route of exposure and type of effects	**Exposure concentration**	**Risk characterisation**
Inhalation, systemic, long-term	**0.064 mg/m³** (external tool (easyTRA))	RCR = 0.546
Inhalation, systemic, acute	**0.086 mg/m³** (external tool (easyTRA))	RCR = 0.012
Inhalation, local, long-term		Qualitative (see below)
Inhalation, local, acute		Qualitative (see below)
Dermal, systemic, long-term	**2.06E-4 mg/kg bw/day** (external tool (easyTRA))	RCR < 0.01
Dermal, systemic, acute	**2.06E-4 mg/kg bw/day** (external tool (easyTRA))	RCR < 0.01
Dermal, local, long-term		Qualitative (see below)
Dermal, local, acute		Qualitative (see below)
Combined routes, systemic, long-term		RCR = 0.552
Combined routes, systemic, acute		RCR = 0.012

Conclusion on risk characterisation

The available data material suggests that the dominating local effect upon exposure to the substance, both long- and short term, will be irritation. Dermal irritation is prevented by workers wearing gloves at all times when working with the substance. Inhalative irritation is prevented by either working under effective local area ventilation systems or, when this is not available, by wearing air supplied respiratory protection or when not available, a universal filtering respiratory protective

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

system, when significant chance for exposure arises. The relative low vapor pressure of the substance further lowers any inhalative exposure below a level, which could give local inhalative irritation. The risk management measures mentioned above (gloves and LEV/respiratory protection) are primarily implemented to eliminate the more severe systemic effect of exposure, but also effectively eliminates local effects. Therefore any long- or short-term risks for local effects upon exposure the substance are controlled.

2.3. Worker contributing scenario 2: Worker. Transfer of substance to flotation process, outdoors, with respiratoric protection (PROC 8b)

2.3.1. Conditions of use

	Method
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: < 10 minutes	External tool (easyTRA v.3.5.0)
• Concentration of substance in a mixture: < 95 % w/w	External tool (easyTRA v.3.5.0)
Conditions and measures related to personal protection, hygiene and health evaluation	
• Respiratory protection: yes [effectiveness inhalation: 99%]	External tool (easyTRA v.3.5.0)
• Dermal protection: yes (chemically resistant gloves conforming to EN374 with specific activity training) [effectiveness dermal: 95%]	External tool (easyTRA v.3.5.0)
Other conditions affecting workers exposure	
• Place of use: outdoor	External tool (easyTRA v.3.5.0)

2.3.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

Table 9. Exposure concentrations and risks for workers

Route of exposure and type of effects	**Exposure concentration**	**Risk characterisation**
Inhalation, systemic, long-term	**0.042 mg/m³** (external tool (easyTRA v.3.5.0))	RCR = 0.36
Inhalation, systemic, acute	**4.08 mg/m³** (external tool (easyTRA v.3.5.0))	RCR = 0.579
Inhalation, local, long-term		Qualitative (see below)
Inhalation, local, acute		Qualitative (see below)
Dermal, systemic, long-term	**0.014 mg/kg bw/day** (external tool (easyTRA v.3.5.0))	RCR = 0.407
Dermal, systemic, acute	**0.027 mg/kg bw/day** (external tool (easyTRA v.3.5.0))	RCR = 0.014
Dermal, local, long-term		Qualitative (see below)

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Dermal, local, acute		Qualitative (see below)
Combined routes, systemic, long-term		RCR = 0.767
Combined routes, systemic, acute		RCR = 0.592

Conclusion on risk characterisation
The available data material suggests that the dominating local effect upon exposure to the substance, both long- and short term, will be irritation. Dermal irritation is prevented by workers wearing gloves at all times when working with the substance. Inhalative irritation is prevented by either working under effective local area ventilation systems or, when this is not available, by wearing air supplied respiratory protection or when not available, a universal filtering respiratory protective system, when significant chance for exposure arises. The relative low vapor pressure of the substance further lowers any inhalative exposure below a level, which could give local inhalative irritation. The risk management measures mentioned above (gloves and LEV/respiratory protection) are primarily implemented to eliminate the more severe systemic effect of exposure, but also effectively eliminates local effects. Therefore any long- or short-term risks for local effects upon exposure the substance are controlled.

2.4. Worker contributing scenario 3: Worker. Transfer of substance to flotation process, outdoors, with no respiratoric protection, but measured exposure values (PROC 8b)

2.4.1. Conditions of use

	Method
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: < 10 minutes *This work process must not exceed 10 minutes per workday.*	External tool (easyTRA v.3.5.0)
• Concentration of substance in a mixture: < 95 % w/w	External tool (easyTRA v.3.5.0)
Technical and organisational conditions and measures	
• Measured inhalation data: 0.05 mg/m^3 *This exposure scenario is based on measured worker inhalation data. If such data is not available for a similar work situation, then respiratory protection must be used, see exposure scenario number 11*	External tool (easyTRA v.3.5.0)
Conditions and measures related to personal protection, hygiene and health evaluation	
• Dermal protection: yes (chemically resistant gloves conforming to EN374 with specific activity training) [effectiveness dermal: 95%]	External tool (easyTRA v.3.5.0)
Other conditions affecting workers exposure	
• Place of use: outdoor	External tool (easyTRA v.3.5.0)

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

2.4.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

Table 10. Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.05 mg/m³** (external tool (easyTRA v.3.5.0))	RCR = 0.424
Inhalation, systemic, acute	**0.05 mg/m³** (external tool (easyTRA v.3.5.0))	RCR < 0.01
Inhalation, local, long-term		Qualitative (see below)
Inhalation, local, acute		Qualitative (see below)
Dermal, systemic, long-term	**0.014 mg/kg bw/day** (external tool (easyTRA v.3.5.0))	RCR = 0.407
Dermal, systemic, acute	**0.027 mg/kg bw/day** (external tool (easyTRA v.3.5.0))	RCR = 0.014
Dermal, local, long-term		Qualitative (see below)
Dermal, local, acute		Qualitative (see below)
Combined routes, systemic, long-term		RCR = 0.831
Combined routes, systemic, acute		RCR = 0.021

Conclusion on risk characterisation
The available data material suggests that the dominating local effect upon exposure to the substance, both long- and short term, will be irritation. Dermal irritation is prevented by workers wearing gloves at all times when working with the substance. Inhalative irritation is prevented by either working under effective local area ventilation systems or, when this is not available, by wearing air supplied respiratory protection or when not available, a universal filtering respiratory protective system, when significant chance for exposure arises. The relative low vapor pressure of the substance further lowers any inhalative exposure below a level, which could give local inhalative irritation. The risk management measures mentioned above (gloves and LEV/respiratory protection) are primarily implemented to eliminate the more severe systemic effect of exposure, but also effectively eliminates local effects. Therefore any long- or short-term risks for local effects upon exposure the substance are controlled.

2.5. Worker contributing scenario 4: Worker. Laboratory analytical work on floatation process (PROC 15)

2.5.1. Conditions of use

	Method
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity: < 24 hours *This work process must not exceed 24 hours per workday.*	External tool (easyTRA v.3.5.0)

FMC Agricultural Solutions A/S
Thyborønvej 78
DK-7673 Harboøre
Denmark
+45 9690 9690
www.fmc.com
CVR No. DK 12 76 00 43

	Method
• Concentration of substance in a mixture: < 0.01 % w/w	External tool (easyTRA v.3.5.0)
Conditions and measures related to personal protection, hygiene and health evaluation	
• Dermal protection: yes (chemically resistant gloves conforming to EN374 with specific activity training) [effectiveness dermal: 95%]	External tool (easyTRA v.3.5.0)
Other conditions affecting workers exposure	
• Place of use: indoor	External tool (easyTRA v.3.5.0)

2.5.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

Table 11. Exposure concentrations and risks for workers

Route of exposure and type of effects	**Exposure concentration**	**Risk characterisation**
Inhalation, systemic, long-term	**5.52E-4 mg/m³** (external tool (easyTRA v.3.5.0))	RCR < 0.01
Inhalation, systemic, acute	**7.36E-4 mg/m³** (external tool (easyTRA v.3.5.0))	RCR < 0.01
Inhalation, local, long-term		Qualitative (see below)
Inhalation, local, acute		Qualitative (see below)
Dermal, systemic, long-term	**5.14E-6 mg/kg bw/day** (external tool (easyTRA v.3.5.0))	RCR < 0.01
Dermal, systemic, acute	**5.14E-6 mg/kg bw/day** (external tool (easyTRA v.3.5.0))	RCR < 0.01
Dermal, local, long-term		Qualitative (see below)
Dermal, local, acute		Qualitative (see below)
Combined routes, systemic, long-term		RCR < 0.01
Combined routes, systemic, acute		RCR < 0.01

Conclusion on risk characterisation

The available data material suggests that the dominating local effect upon exposure to the substance, both long- and short term, will be irritation. Dermal irritation is prevented by workers wearing gloves at all times when working with the substance. Inhalative irritation is prevented by either working under effective local area ventilation systems or, when this is not available, by wearing air supplied respiratory protection or when not available, a universal filtering respiratory protective system, when significant chance for exposure arises. The relative low vapor pressure of the substance further lowers any inhalative exposure below a level, which could give local inhalative irritation. The risk management measures mentioned above (gloves and LEV/respiratory protection) are primarily implemented to eliminate the more severe systemic effect of exposure, but also effectively eliminates local effects. Therefore any long- or short-term risks for local effects upon exposure the substance are controlled.