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MATERIAL DATA SAFETY SHEET

1. Identification

Product Code: C 8118

Chemical Name: Cyclohexyldimethoxymethylsilane, 99%

2. Hazardous Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Skin irritation (Category 2)

Chronic aquatic toxicity (Category 2)

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to skin.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Pictogram

Signal word Warning

Hazard statement(s)

H315 Causes skin irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P280 Wear protective gloves/protective clothing/eye protection.

P273 Avoid release to the environment.

P302+P352 IF ON SKIN: Wash with plenty of water/soap.

P332+P313 If skin irritation occurs: Get medical advice/ attention.

P391 Collect spillage.

P501 Dispose of contents/container to waste disposal.

2.3 Other hazards – none

Product hydrolyses under formation of methanol (CAS no. 67-56-1). Methanol is toxic by inhalation, in contact with skin and if swallowed. Methanol causes damage to organs.

Methanol is highly flammable. Inhalation of aerosol spray may damage health.

3. Composition/Information on Ingredients

3.1 Substances

Synonyms: Donor C

Formula: C₉H₂₀O₂Si

Molecular Weight: 188,34 g/mol

Component Cyclohexyldimethoxymethylsilane

CAS-No. 17865-32-6

EC-No. 402-140-1

4. First Aid Measures

4.1 Description of first aid measures

General advice

Take persons to a safe place. Observe self-protection for first aid. Seek medical advice in the event of contact with this substance.

If inhaled

Keep the patient calm. Protect against loss of body heat. Seek medical advice and clearly identify substance.

In case of skin contact

Remove contaminated or soaked clothing. Wash off with plenty of water or water and soap immediately for 10-15 minutes. In serious cases, use emergency shower immediately. Seek medical advice and clearly identify substance.

In case of eye contact

Rinse immediately with plenty of water for 10-15 minutes. Keep eyelids well open to rinse the whole eye surface and eyelids with water. Seek medical advice and clearly identify substance.

If swallowed

If conscious, give several small portions of water to drink. Do not induce vomiting. Seek medical advice and clearly identify substance.

4.2 Most important symptoms and effects, both acute and delayed

Any relevant information can be found in other parts of this section.

4.3 Indication of immediate medical attention and special treatment needed

Further toxicology information in section 11 must be observed.

5. Fire Fighting Measures

5.1 Extinguishing media

5.2 Special hazards arising from the substance or mixture

5.3 Precautions for fire-fighters

Use respiratory protection independent of recirculated air. Keep unprotected persons away.

5.4 Further information

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment (see section 8). Keep unprotected persons away. Avoid contact with eyes and skin. Avoid inhaling mists and vapours. If material is released indicate risk of slipping.

6.2 Environmental precautions

Prevent material from entering surface waters, drains or sewers and soil. Contain any fluid that runs out using suitable material (e.g. earth). Retain contaminated water/extinguishing water. Dispose of in prescribed marked containers.

6.3 Methods and materials for containment and cleaning up

Do not flush away with water. For small amounts: Absorb with a liquid binding material such as diatomaceous earth and dispose of according to local/state/federal regulations. Contain larger amounts and pump up into suitable containers. Clean any slippery coating that remains using a detergent / soap solution or another biodegradable cleaner. Exhaust vapours.

Further information:

Eliminate all sources of ignition.

6.4 Reference to other sections

Relevant information in other sections has to be considered. This applies in particular for information given on personal protective equipment (section 8) and on disposal (section 13).

7. Handling and Storage

7.1 Precautions for safe handling

Ensure adequate ventilation. Keep away from incompatible substances in accordance with section 10. Spilled substance increases risk of slipping.

Precautions against fire and explosion:

Product can separate methanol. Flammable vapors may accumulate and form explosive mixtures with air in containers, process vessels, including partial, empty and uncleaned containers and vessels, or other enclosed spaces. Keep away from sources of ignition and do not smoke. Take precautionary measures against electrostatic charging. Cool endangered containers with water.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for storage rooms and vessels:

Make sure there is no possibility of entering the ground.

Advice for storage of incompatible materials:

not applicable

Further information for storage:

Protect against moisture. Store in original container only. Keep container tightly closed and store in a cool, well ventilated place.

7.3 Specific end uses

No data available

If the annex to this safety data sheet contains exposure scenarios for end uses, the information provided therein has to be observed.

8. Exposure Controls and Personal Protection

8.1 Control parameters

Components with workplace control parameters

Maximum airborne concentrations at the workplace:

CAS No.	Material	Type	mg/m ³	ppm	Dust fract.	Fibre/m ³
67-56-1	Methanol	OEL	266,0	200,0		

Derived No-Effect Level (DNEL):

Cyclohexyldimethoxymethylsilane

Area of use:

Value:

Worker; dermal; systemic (acute) systemic (long term) 13,9 mg/kg/day

Worker; by inhalation; systemic (acute) systemic (long term) 98 mg/m³

Consumer; oral; systemic (long term) 8,33 mg/kg/day

Predicted No Effect Concentration (PNEC):

Cyclohexyldimethoxymethylsilane

Area of use:

Value:

freshwater 0,013 mg/l

marine water 0,0013 mg/l

Intermittent release 0,13 mg/l

Sediment (freshwater) 5,22 mg/kg dry mass

Sediment (marine water) 0,52 mg/kg dry mass

Soil 1,04 mg/kg dry mass

8.2 Exposure controls

General protection and hygiene measures:

Avoid contact with eyes and skin. Do not inhale gases/vapours/aerosols. Do not eat, drink or smoke when handling.

Personal protection equipment:

Respiratory protection

In case of long or strong exposure: gas mask filter ABEK .

Hand protection

Protective gloves made of butyl rubber . Gloves suitable for up to 60 minutes' use. The selection of appropriate gloves not only depends on the material, but also on other quality characteristics, and may vary depending on the manufacturer. Please observe information from your glove supplier in terms of permeability and breakthrough time.

Eye protection

tight fitting protective goggles .

Skin protection

protective clothing .

Exposure to the environment limited and controlled

Prevent material from entering surface waters, drains or sewers and soil. Do not introduce large amounts into purification plants.

Further information for system design and engineering measures

Observe information in section 7.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Appearance Form: liquid

Colour: colourless

b) Odour: Slight

c) Odour Threshold: No data available

d) pH: No data available

e) Melting/freezing point Melting point/range: < -50 °C

f) Initial boiling point and boiling range: 198 °C at 1013 h Pa.

g) Flash point: 76 °C - closed cup

h) Sustained combustibility: 78°C

i) Ignition temperature: 235°C

j) Upper/lower flammability or explosive limits: No data available

k) Vapour pressure: 0.48 hPa at 20 °C

l) Vapour pressure: 1.7 hPa at 38 °C

m) Relative density: 0,94 g/cm³ at 25 °C

n) Water solubility: 0.28 g/l at 20 °C

o) Solubility in organic solvent: totally miscible with common organic solvents

p) Viscosity (dynamic): 1,6 mPa.s at 25 °C

q) Viscosity (kinematic): 1,7 mm²/s at 25 °C

9.2 Other safety information

Re 9.2 solubility in water: Hydrolytic decomposition occurs. Explosion limits for released methanol: 5.5 - 44%(V). Re 9.2 pH Value: Product displays neutral reaction.

Thermal decomposition :

No decomposition when used according to regulations.

10. Stability and Reactivity

10.1-10.3 Reactivity; Chemical stability; Possibility of hazardous reactions

If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

Relevant information can possibly be found in other parts of this section.

10.4 Conditions to avoid

Avoid moisture.

10.5 Incompatible materials

Reacts with: water , basic substances and acids . Reaction causes the formation of: methanol .

10.6 Hazardous decomposition products

If stored and handled properly: none known . By hydrolysis: methanol .

11. Toxicological Information

11.1 Information on toxicological effects

11.1.1 Acute toxicity

Product details:

Route of exposure	Result/Effect	Species/Test system	Source
oral	LD50: 2762 mg/kg	rat (female)	test report OECD 401
dermal	LD50: > 2000 mg/kg No mortality with the given dose.	rate	test report OECD 402
by inhalation(spray)	LC50: > 5,53 mg/l; 4 h No mortality with the given dose.	rate	test report OECD 403

11.1.2 Skin corrosion/irritation

Product details:

Result/Effect	Species/Test system	Source
irritating	rabbit	test report OECD 404

11.1.3 Serious eye damage / eye irritation

Product details:

Result/Effect	Species/Test system	Source
not irritating	rabbit	test report OECD 405

11.1.4 Respiratory or skin sensitization

Product details:

Route of	Result/Effect	Species/Test system	Source
dermal	not sensitizing	guinea-pig; Magnusson-Kligman	test report OECD 406

11.1.5 Germ cell mutagenicity

Assessment:

Based on the available data the criteria for classification as germ cell mutagen are not fulfilled.

Product details:

Result/Effect	Species/Test system	Source
negative	mutation assay (in vitro) bacterial cells	test report OECD 471
negative	chromosome aberration assay (in vitro) mammalian cells	test report OECD 473
positive The result for the other sex was negativThe result the	micro nucleus assay (in vivo) mouse (, male) oral; 48 h; erythrocytes	test report OECD 474
negative	Rodent Dominant Lethal Test mouse (, both sexes) oral; germ cells	test report

11.1.6 Carcinogenicity

Assessment:

No data known.

11.1.7 Reproductive toxicity

Assessment:

No data known.

11.1.8 Specific target organ toxicity (single exposure)

Assessment:

No data known.

11.1.9 Specific target organ toxicity (repeated exposure)

Assessment:

Based on the available data the criteria for classification as toxic after repeated exposure are not fulfilled.

Product details:

Result/Effect	Species/Test system	Source
NOAEL: 200 mg/kg	Subchronic study rat	literature
LOAEL: 1000 mg/kg	oral (gavage)	(read- across substance)
Target organs: liver Animal tests have shown no indications of impairment of		OECD 408
NOAEL: >= 1000 mg/kg	Subacute study rat 28 d	test report OECD 407

11.1.10 Aspiration hazard

Assessment:

No data known.

11.1.11 Further toxicological information

Hydrolysis product / impurity: Methanol (CAS 67-56-1) is readily and rapidly absorbed at all exposure routes and is toxic by all routes. Methanol may cause irritation of the mucosa, as well as nausea, vomiting, headaches, vertigo and visual disorders, including blindness (irreversible damage to the optic nerve), acidosis, spasms, narcosis and coma. There may be a delay in the onset of these effects after exposure.

12. Ecological Effects

12.1 Toxicity

Product details:

Result/Effect	Species/Test system	Source
LC50: 35 mg/l	semistatic rainbow trout (<i>Oncorhynchus mykiss</i>)	Test OECD 203
EC50: 13 mg/l (measured)	static Daphnia magna (48 h)	Test OECD 202
EC50: 2,3 - 48 mg/l (measured)	static Daphnia	literature
IC50 (growth rate): 35 mg/l	static Desmodesmus subspicatus (72 h)	test report OECD 201
EC50 (respiratory inhibition): > 20000 mg/l	sludge (3 h)	test report (readacross substance) OECD 209

12.2 Persistence and degradability

Assessment:

Contact with water liberates methanol and silanol- and/or siloxanol-compounds. Silanoland/or siloxanol-compounds: Biologically not degradable. Methanol biodegrades easily.

Product details:

Biodegradation:

Result	Test system/Method	Source
17 % / 28 d Not readily biodegradable. Rapid biological degradation of the organic hydrolysis product.	biological oxygen demand (BOD)	test report OECD 301D

12.3 Bioaccumulative potential

No data known.

12.4 Mobility in soil

No data known.

12.5 Results of PBT and vPvB assessment

This product contains no relevant substances considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

none known

Section 13: Disposal Consideration

Waste Disposal

Comply with Federal, State, and local regulation. If approved, remove to land disposal area.

14. Transport Information

14.1 UN-Number

ADR/RID: 3082

IMDG: 3082

Result Test system Source

Half-life: 19 h pH 7; 25 °C test report (read- across substance) OECD 111

IATA: 3082

14.2 UN proper shipping name

ADR/RID:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Cyclohexyl-methyldimethoxysilane)

IMDG:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Cyclohexyl-methyldimethoxysilane)

IATA:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Cyclohexyl-methyl-dimethoxysilane)

14.3 Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: no IATA: yes

14.6 Special precautions for users

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15. Regulatory Information

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

National and local regulations must be observed.

For information on labelling please refer to section 2 of this document.

Relevant regulations:

SI 2002/1689: CHIP Regulations 2002

SI 2002/2677: COSHH Regulations 2002

SI 1999/3242: Management of Health & Safety at Work Regulations 1999

Health & Safety at Work Act 1974

SI 1993/1643: Environmental Protection Act 1993 & Subsidiary Regulations.

Other national and local measures relating to the workplace, pollution control, environmental protection and waste control.

15.2 Chemical Safety Assessment

For this product, a chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has been carried out.

16. Other Information

It must be recognized that the physical and chemical properties of any product may not be fully understood and that new, possibly hazardous products may arise from reactions between chemicals. The information given in this data sheet is based on our present

knowledge and shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.