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SAFETY DATA SHEET

SODIUM CHLORATE

/REG_EU/EN

Revision Date: 20.09.2012

Previous date: 16.05.2012

Print Date:18.12.2013

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product information

Commercial Product Name
SODIUM CHLORATE
Registration number:
01-2119474389-23

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

Use of the Substance/Mixture

Production of chlorine dioxide, ClO₂, which is used as a bleaching agent in the pulp industry.
Production of other chemicals, oxidising agent in metallurgical industry, production of dry batteries, oxidising agent in organic syntheses.

Recommended restrictions on use

There are no uses advised against.

1.4 Emergency telephone number

Carechem 24 International: +44 (0) 1235 239 670

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EU) 1272/2008(CLP)

Oxidizing solids; Category 1; May cause fire or explosion; strong oxidiser.

Acute toxicity; Category 4; Harmful if swallowed.

Chronic aquatic toxicity; Category 2; Toxic to aquatic life with long lasting effects.

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

Dangerous for the environment; Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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Harmful; Harmful if swallowed.
Oxidising; Explosive when mixed with combustible material.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word :

Danger

Hazard statements :

H271
H302
H411

May cause fire or explosion; strong oxidiser.
Harmful if swallowed.
Toxic to aquatic life with long lasting effects.

Precautionary statements :

P273
P210

Store away from combustibles.
Avoid release to the environment.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Prevention:

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P264

Wash hands thoroughly after handling.

P283

Wear fire/ flame resistant/ retardant clothing.

Response:

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

P370 + P380

In case of fire: Evacuate area.

P375

Fight fire remotely due to the risk of explosion.

Disposal:

P501

Dispose of contents/container as special waste in compliance with local and national regulations.

Hazardous components which must be listed on the label:
7775-09-9 Sodium chlorate

2.3 Other hazards

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Contact with acids liberates toxic gas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS-No. EINECS-No. / ELINCS No.	Concentration [%]
Sodium chlorate	7775-09-9 231-887-4	> 99,5

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Inhalation

Move to fresh air in case of accidental inhalation of vapours or decomposition products.

Skin contact

Wash off immediately with plenty of water removing all contaminated clothes and shoes.

Eye contact

Rinse thoroughly with plenty of water, also under the eyelids. If eye irritation persists, consult a specialist.

Ingestion

Rinse mouth. Immediately give large quantities of water to drink. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No hazards to be specially mentioned.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Treatment : Symptomatic treatment.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Extinguishing media : Water
Unsuitable extinguishing media : Carbon dioxide (CO₂)

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Dry powder

Foam

5.2 Special hazards arising from the substance or mixture

Burning produces noxious and toxic fumes. Risk of explosion > 250 °C, sodium chlorate decomposes.

5.3 Special protective actions for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Specific methods

In the event of fire, cool tanks with water spray. The product itself does not burn but it sustains the combustion of combustible material. Because the risk of fire is an important factor in the handling of sodium chlorate, non-combustible materials must be used. Take all steps to prevent chlorate contamination with combustible or oxidising materials.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Remove all sources of ignition. Avoid dust formation.

6.2 Environmental precautions

Should not be released into the environment. Prevent product from entering drains. Avoid subsoil penetration.

6.3 Methods and materials for containment and cleaning up

Take up mechanically and collect into suitable containers for disposal. After cleaning, flush away traces with water. Flush with plenty of water. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid dust formation. Use only clean equipment. Take off all contaminated clothing immediately. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. Avoid shock and friction. Wear personal protective equipment. Use product only in closed system. Ensure adequate ventilation. In laboratory use fume cupboard. A bath filled with water or emergency shower and eye wash are required near the working area.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in a fireproof storage room. Protect against light. Store in original container. Due to possible dust formation, the storage space has to be easily washable with water. Jointless smooth floor. Wood or other combustible materials are not allowed to be used in ventilation systems nor in building materials.

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Materials to avoid:

Alkaline earth metals, metal oxides, Reducing agents, Combustible material, oxidizable materials, organic materials (e.g. alcohols, solvents, sugar, sawdust, paints, oils, greases and cleaning cottons), oxidants (e.g. sulphur, ammonium compounds, phosphor, cyanides and powdered metals), acids (e.g. sulphuric acid, hydrochloric acid, nitric acid), Sulphur compounds

7.3 Specific end uses

not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Limit Values

8.1.1 Limit values in other countries

Finland:

Inorganic dust

HTP (8h) = 10 mg/m³

Sweden:

Inorganic dust

NGV = 5 mg/m³, Respirable dust

NGV = 10 mg/m³, inhalable dust

Germany:

Inorganic dust

AGW = 3 mg/m³, respirable fraction, 2

AGW = 10 mg/m³, inhalable fraction, 2

Spain:

Inorganic dust

France:

Inorganic dust

VME = 5 mg/m³, Respirable dust

VME = 10 mg/m³, inhalable dust

Latvia:

Sodium chlorate

TWA = 5 mg/m³

AER 8 st = 5 mg/m³

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Poland:
Inorganic dust
Slovenia:
Inorganic dust
Slovakia:
Inorganic dust

DNEL

Sodium chlorate

: End Use: Workers
Exposure routes: dermal
Value: 3,08 mg/kg bw/day
Long-term exposure - systemic effects
End Use: Workers
Exposure routes: Inhalation
Value: 5,0 mg/m³
Long-term exposure - systemic effects

PNEC

Sodium chlorate

: Soil
Value: 3,33 mg/kg dw

STP
Value: 100 mg/l

Oral
Value: 10 mg/kg food
Secondary poisoning, Birds

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. When using do not eat, drink or smoke. Avoid contact with skin, eyes and clothing.

8.2.2 Individual protection measures, such as personal protective equipment

Hand protection

Glove material: butyl-rubber
Glove material: Nitrile rubber
Glove material: PVC
Glove material: Neoprene

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Permeability tests are not available for this product. If changes are detected in used gloves, discard them immediately.

Eye protection

Safety glasses . Eye wash bottle with pure water

Skin and body protection

Protective suit . Rubber or plastic boots : Wear trouser legs outside the rubber boots. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Thoroughly clean shoes before reuse.

Respiratory protection

Respirator must be worn if exposed to dust. Respirator with B2-P3 filter.

8.2.3 Environmental exposure controls

Prevent product from entering the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information (appearance, odour)

Physical state	solid, crystalline
Colour	white
Odour	odourless

Important health safety and environmental information

pH	ca. 7 (500 g/l)
Melting point/range	248 - 250 °C
Boiling point/boiling range	Decomposes on heating.
Flash point	no data available
Flammability (solid, gas)	does not ignite
Explosive properties:	
Lower explosion limit	no data available
Upper explosion limit	no data available
Density	2,490 g/cm ³
Bulk density	1.500 kg/m ³
Solubility(ies):	
Water solubility	630 g/l (0 °C)

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Fat solubility (solvent - oil to be specified) Solubility in other solvents	1.000 g/l (20 °C) no data available solvent-like: Glycerol soluble solvent-like: ethanol (90%) 12,6 g/l soluble log Pow: < -2,9 ca. 250 - 300 °C
Partition coefficient: n-octanol/water Thermal decomposition	
Viscosity: Viscosity, dynamic	7,78 mPa.s (252 °C)
Oxidising	Strong oxidizer.
Surface tension	not determined

9.2 Other data

10. STABILITY AND REACTIVITY

10.1 Reactivity

Strong oxidizer.

10.2 Chemical stability

Very reactive.

10.3 Possibility of hazardous reactions

Hazardous reactions : Risk of explosion > 250 °C, sodium chlorate decomposes.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.
Keep away from sources of ignition - No smoking.

10.5 Incompatible materials

Materials to avoid : Alkaline earth metals
metal oxides
Reducing agents
Combustible material
oxidizable materials
organic materials (e.g. alcohols, solvents, sugar, sawdust, paints, oils, greases and cleaning cottons)
oxidants (e.g. sulphur, ammonium compounds, phosphor,

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cyanides and powdered metals)
acids (e.g. sulphuric acid, hydrochloric acid, nitric acid)
Sulphur compounds

10.6 Hazardous decomposition products

Hazardous decomposition products : chlorine
chlorine dioxide

Thermal decomposition : ca.250 - 300 °C

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Harmful if swallowed.

Irritation and corrosion

Skin:
Mild skin irritation

Eyes:
Irritating to eyes.

Respiratory system:
Irritating to respiratory system.

Sensitisation

no data available

Long term toxicity

Repeated dose toxicity

Carcinogenicity

no data available

Mutagenicity

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no data available

Reproductive toxicity

no data available

Other information

Blood disorder may occur after prolonged inhalation.

Human experience

Ingestion

Toxic if swallowed. Lethal dose may be 5-10 g to adults and 2 g to small children.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity effects

Aquatic toxicity

LC50/48 h/Oncorhynchus mykiss (rainbow trout): 2.750 mg/l
LC50/96 h/Oncorhynchus mykiss (rainbow trout): 1.750 mg/l
LC50/96 h/Pimephales promelas (fathead minnow): 12.840 - 14.520 mg/l
LC50/96 h/Alburnus alburnus (bleak): 13.000 mg/l
LC50/96 h/Cyprinus carpio (Carp): 2.340 - 7.090 mg/l
EC50/24 h/Daphnia magna (Water flea): 1.093 mg/l
NOEC/48 h/Daphnia magna (Water flea): 1.000 mg/l
EC100/algae (Focus sp.): 0,02 mg/l
LOEC/96 h/Scenedesmus quadricauda (Green algae): 3 mg/l
EC50/120 h/Pseudokirchneriella subcapitata (green algae): 122 - 144 mg/l

Toxicity to other organisms

Toxic to flora. Destructive dose 20 - 60 g/m² (herbicide). Toxic to bees.

12.2 Persistence and degradability

Biological degradability:

Product is not readily biodegradable in water or under aerobic circumstances. In anaerobic environments

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microbes may reduce chlorate to chloride.

Chemical degradation:

In water solutions sodium chlorate exists as sodium and chlorate ions. The chlorate ions are reducing further to chloride ions and oxygen.

12.3 Bioaccumulative potential

Does not bioaccumulate.

Partition coefficient: n-octanol/water: log Pow: < -2,9

12.4. Mobility in soil

Mobility

Vapour pressure: (20 °C)

Water solubility: 630 g/l (0 °C)

1.000 g/l (20 °C)

Surface tension: not determined

Aqueous solution of the product is absorbed into subsoil and may spread into ground water.

12.5. Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

The product stays in the ground 0,5 - 5 years depending on quantity, type of ground, quantity of organic material, humidity and weather conditions.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Should not be released into the environment. Do not let product enter drains. Dispose of as special waste in compliance with local and national regulations.

Contaminated packaging

Classified as hazardous waste. Dispose of as special waste in compliance with local and national regulations.

14. TRANSPORT INFORMATION

14.1 UN number

1495

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Land transport

ADR /RID:

Description of the goods:

14.2 UN proper shipping name Sodium chlorate

14.3 Class 5.1

14.4 Packaging group: II

Risk code 50

ADR/RID-Labels: 5.1

14.5 Environmentally Hazardous Environmentally Hazardous

Carriage and containers must be cleaned thoroughly before loading, especially all combustible debris (straws, hay, paper etc.) must be disposed of. Use of combustible materials for supporting packages is prohibited.

Sea transport

IMDG:

Description of the goods:

14.2 UN proper shipping name UN1495, SODIUM CHLORATE

14.3 Class: 5.1

14.4 Packaging group: II

IMDG-Labels: 5.1

14.5 Environmentally Hazardous: Marine pollutant

Air transport

ICAO/IATA:

Description of the goods

14.2 UN proper shipping name UN1495, Sodium chlorate

14.3 Class: 5.1

14.4 Packaging group: II

ICAO-Labels: 5.1

14.5 Environmentally Hazardous Environmentally Hazardous

14.6 Special precautions for user

None known.

15. REGULATORY INFORMATION

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

Other regulations : No restrictions identified other than those already covered in regulations.

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15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

16. OTHER INFORMATION

Full text of H-Statements referred to under section 3.

H271 May cause fire or explosion; strong oxidiser.
H302 Harmful if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Text of R-phrases mentioned in Section 3

R 9 Explosive when mixed with combustible material.
R22 Harmful if swallowed.
R51 Toxic to aquatic organisms.
R53 May cause long-term adverse effects in the aquatic environment.

Training advice

Read the safety data sheet before using the product.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Sources of key data used to compile the Safety Data Sheet

Regulations, databases, literature, own tests.

Additions, Deletions, Revisions

Relevant changes have been marked with vertical lines.