

Material Safety Data Sheet

Date Printed: 14/DEC/2004

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Version 1.3

According to 91/155/EEC

1 - Product and Company Information

| | |
|-------------------|---|
| Product Name | SODIUM CHLORATE, 99+%, A.C.S. REAGENT |
| Product Number | 403016 |
| Company | Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore |
| Technical Phone # | 65 271 1089 |
| Fax | 65 271 1571 |

2 - Composition/Information on Ingredients

| Product Name | CAS # | EC no | Annex I Index Number |
|-----------------|-----------|-----------|-------------------------|
| SODIUM CHLORATE | 7775-09-9 | 231-887-4 | 017-005-00-9 |

| | |
|------------------|--|
| Formula | NaClO ₃ |
| Molecular Weight | 106.44 AMU |
| Synonyms | Agrosan * Asex * Atlacide * Atratol * B-Herbattox * Chlorate de sodium * Chlorate salt of sodium * Desolet * Drexel defol * Evau-super * Grain sorghum harvest-aid * Granex O * Harvest-aid * Hibar C * Kusa-tohru * Kusatol * Leafex 2 * Natriumchloraat (Dutch) * Natriumchlorat (German) * Ortho C-1 defoliant & weed killer * Oxycil * Rasikal * Shed-A-leaf * Soda chlorate * Sodakem * Sodio (clorato di) (Italian) * Sodium chlorate * Sodium(chlorate de) (French) * Travex * Tumbleaf * United Chemical Defoliant No. 1 * VAL-DROP |

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Explosive when mixed with combustible material. Harmful if
swallowed.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If breathing becomes difficult,
call a physician.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for
at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of

water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions. Contact with other material may cause fire. May accelerate combustion.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from combustible materials, heat, sparks, and open flame.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Remove and wash contaminated clothing promptly.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

| | | |
|-----------------------|---|----------------------------|
| Appearance | Color: Colorless Form: Fine crystals | |
| Property | Value | At Temperature or Pressure |
| pH | N/A | |
| BP/BP Range | N/A | |
| MP/MP Range | 248 - 261 °C | |
| Flash Point | N/A | |
| Flammability | N/A | |
| Autoignition Temp | N/A | |
| Oxidizing Properties | N/A | |
| Explosive Properties | N/A | |
| Explosion Limits | N/A | |
| Vapor Pressure | N/A | |
| SG/Density | 2.49 g/cm3 | |
| Partition Coefficient | N/A | |
| Viscosity | N/A | |
| Vapor Density | N/A | |
| Saturated Vapor Conc. | N/A | |
| Evaporation Rate | N/A | |
| Bulk Density | N/A | |
| Decomposition Temp. | N/A | |
| Solvent Content | N/A | |
| Water Content | N/A | |
| Surface Tension | N/A | |
| Conductivity | N/A | |
| Miscellaneous Data | N/A | |
| Solubility | N/A | |

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong reducing agents, Organic materials, Alcohols.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen chloride gas, Sodium oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: FO0525000

ACUTE TOXICITY

LD50

Oral

Rat

1200 mg/kg

LC50

Inhalation

Rat

> 28,000 mg/m3

1H

LD50
Oral
Mouse
8350 mg/kg

LD50
Intraperitoneal
Mouse
596 MG/KG

LD50
Oral
Rabbit
7200 mg/kg

LD50
Skin
Rabbit
> 10000 mg/kg

IRRITATION DATA

Skin
Rabbit
500 mg
24H
Remarks: Mild irritation effect

Eyes
Rabbit
10 mg
Remarks: Mild irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Exposure can cause: Coughing, chest pains, difficulty in breathing. Dizziness. Symptoms may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

TARGET ORGAN INFORMATION

Blood. Kidneys. Liver.

CHRONIC EXPOSURE - MUTAGEN

Rat
84 MG/KG
Oral
12W
DNA inhibition

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: > 1,000 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: > 1,000 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1495
Class: 5.1
PG: II
Proper Shipping Name: Sodium chlorate

IMDG

UN#: 1495
Class: 5.1
PG: II
Proper Shipping Name: Sodium chlorate
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1495
Class: 5.1
PG: II
Proper Shipping Name: Sodium chlorate
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 017-005-00-9

INDICATION OF DANGER: O Xn

Oxidizing. Harmful.

R-PHRASES: 9 22

Explosive when mixed with combustible material. Harmful if swallowed.

S-PHRASES: 13 17 46

Keep away from food, drink, and animal feedingstuffs. Keep away from combustible material. If swallowed, seek medical advice immediately and show this container or label.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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