

Revision Date 04/28/2014
Date of the previous version 07/28/2010

Version 2
US/CA

1. PRODUCT AND COMPANY IDENTIFICATION

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|-----------------------------|--|
| Product Name | Halamid® |
| Chemical Name | Benzene sulfonamide, N-chloro-4-methyl, sodium salt |
| CAS-No | 7080-50-4 |
| Synonyms | Sodium p-toluenesulfonchloramide; Chloramine-T trihydrate |
| Formula | C ₇ H ₇ Cl N NaO ₂ S.H ₂ O |
| Recommended Use | Oxidizing agent |
| Uses advised against | No information available |
| Supplier | Axcentive SARL Chemin de Champouse 13320 Bouc Bel Air France Tel.: +33 442 694 090 Fax : +33 442 694 099 Email: info@axcentive.com |
| Emergency telephone | Global Incident Response Hotline (Access code: 333881) North-America: 1.866.519.4752 South-America: 1.760.476.3962 |

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Harmful if swallowed. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Contact with acids liberates toxic gas. Avoid contact with eyes, skin and clothing. For personal protection see section 8.

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|-----------------------------|--------------------|---------------|-----------------|
| Physical state @20°C | Appearance | Colour | Odour |
| solid | crystalline Powder | white | slight chlorine |

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential health effects

Principle Routes of Exposure Skin contact. Eye contact. Inhalation.

Acute toxicity

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|-------------------|---|
| Eyes | Corrosive to eyes. |
| Skin | Corrosive to skin. May cause allergic reactions in susceptible persons. |
| Inhalation | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Ingestion | Harmful if swallowed. Can burn mouth, throat, and stomach. Severe irritation of the mucous membranes causes vomiting, nausea and burns. |

Aggravated Medical Conditions Persons with pre-existing skin and/or respiratory disease may be at increased risk if exposed to this material.

Environmental hazard This product is not considered to be harmful to aquatic life. See Section 12 for additional information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS-No | Weight % |
|---|-----------|----------|
| Benzene sulfonamide, N-Chloro-4-methyl, sodium salt | 7080-50-4 | 100 |

Additional information

Also listed as the anhydrous form (CAS No. 127-65-1) which is not commercially available.

4. FIRST AID MEASURES

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| General advice | Immediate medical attention is required. |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present. Do not rub affected area. Do not attempt to neutralize with chemical agents. Consult a physician. |
| Skin contact | Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Do not attempt to neutralize with chemical agents. Wash contaminated clothing before reuse. Consult a physician. |
| Ingestion | Rinse mouth. Drink 1 or 2 glasses of water. Do NOT induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Get medical attention. |
| Inhalation | Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Administer oxygen if breathing is difficult. Get medical attention. |
| Notes to physician | Treat symptomatically. Give a slurry of activated charcoal in water to drink. |
| Protection of first-aiders | Use personal protective equipment. Avoid contact with skin, eyes and clothing. |

5. FIRE FIGHTING MEASURES

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| Flammable properties | Not flammable. Not combustible. |
| Flash point | 377.6 °F / 192 °C (Cleveland Open Cup) |
| Autoignition Temperature | Not applicable |
| Suitable extinguishing media | Foam, Dry powder, Water spray, Carbon dioxide (CO ₂). |
| Extinguishing media which must not be used for safety reasons | None known based on information supplied. |
| Hazardous combustion products | Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NO _x), Sulphur oxides, Hydrogen chloride. |
| Fire/Explosion Hazard | Non flammable, Non combustible . Substance does not burn but will support combustion. Thermal decomposition can lead to release of irritating and toxic gases and vapours. Decomposes violently under high temperature (130°C / 266°F). Danger of dust explosion. |

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective suit.

Fire fighting measures

As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate non-essential personnel. Move containers from fire area if you can do it without risk. Keep containers and surroundings cool with water spray. Do not use a solid water stream as it may scatter and spread fire. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Explosion Data

**Sensitivity to Mechanical Impact
Sensitivity to Static Discharge**

None.
Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

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|--------------------|------------------------|-----------------------|--------------------------|--|
| <u>NFPA</u> | Health Hazard 3 | Flammability 1 | Instability 1 | Physical and chemical hazards N/A |
| <u>HMIS</u> | Health Hazard 3 | Flammability 1 | Physical Hazard 1 | Personal precautions N/A |

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Do not breathe dust. Avoid contact with skin, eyes and clothing. Evacuate non-essential personnel. Wear suitable protective clothing.

Environmental precautions

Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains, surface water or soil.

Methods for cleaning up

Avoid dust formation. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Use only in well-ventilated areas. Avoid dust formation. Do not eat, drink or smoke when using this product.

Storage

Store in accordance with local regulations. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labelled containers. Keep away from heat, sparks and flame, Acids, Oxidizing or reducing agents. Protect from moisture. Keep at temperatures below 60 °C / 140 °F. Storage at higher temperatures will cause loss of crystalline structure.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits

Contains no substances with occupational exposure limit values. However, exposure to this product should be controlled below limits established for "Particulates Not Otherwise Classified (PNOC)":
OSHA: 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction)

Appropriate engineering controls

Do not breathe dust. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye protection

Tightly fitting safety goggles.

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| Hand protection | Protective gloves: Nitrile rubber, Butyl rubber, PVC, Viton (R), Neoprene. Break through time: 4-8 hours. Glove thickness: 5 mil. |
| Skin and body protection | Long sleeved clothing. |
| Respiratory protection | If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. |
| Recommended filter type | P2 |
| Hygiene measures | Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use Do not eat, drink or smoke when using this product Wash hands before breaks and immediately after handling the product. Ensure that eyewash stations and safety showers are close to the workstation location |

9. PHYSICAL AND CHEMICAL PROPERTIES

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| Physical state @20°C | solid |
| Appearance | crystalline Powder |
| Colour | white |
| Odour | slight chlorine |
| pH | 8.0-10.3 (@ 5%) |
| Melting/freezing point | Decomposes |
| Boiling point/boiling range | Not applicable (Solid) |
| Flash point | 192 °C / 377.6 °F (Cleveland Open Cup) |
| Evaporation rate | No information available |
| Flammability (solid, gas) | No information available |
| Flammability Limits in Air | No information available |
| Vapour pressure | No information available |
| Vapour density | Not relevant (solid) |
| Relative density | Not relevant (solid) |
| Solubility | |
| Water solubility | 150 g/l (@25°C / 77°F) |
| Solubility in other solvents | Ethanol (75 g/l @20°C / 68°F) |
| Partition coefficient (n-octanol/water) | log Pow = -1.3 |
| Autoignition Temperature | Not applicable |
| Decomposition temperature | 120 - 165°C / 248 - 329°F |
| Viscosity, dynamic | Not applicable |
| Explosive properties | Not explosive |
| Oxidising Properties | Not oxidizing |
| Density | 1430 kg/m ³ |
| Bulk density | 540-680 kg/m ³ |

10. STABILITY AND REACTIVITY

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| Stability | Stable under recommended storage conditions. |
| Materials to Avoid | Acids, Reducing agents, Oxidizing agents. Contact with acids liberates toxic gas. |
| Conditions to Avoid | Heat, flames and sparks. Protect from moisture. |
| Hazardous Decomposition Products | Carbon oxides, Nitrogen oxides (NO _x), Sulphur oxides, Hydrogen chloride. |
| Hazardous Polymerisation | Hazardous polymerisation does not occur. |

11. TOXICOLOGICAL INFORMATION

Acute toxicity

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---------------------------|-----------------------------------|--|
| Benzene sulfonamide, N-Chloro-4-methyl, sodium salt | 1000 mg/kg (Rat, Mouse) | >2000 (rabbit, 4h, 8% solution) | > 0.275 mg/L (max. attained concentration, Rat, 4 h) |

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| Inhalation | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Eye contact | Causes severe eye damage. Aqueous solution: Non-irritating @ <=8%. |
| Skin contact | Causes severe burns. Aqueous solution: Non-irritating . |
| Ingestion | Harmful if swallowed. Can burn mouth, throat, and stomach. Severe irritation of the mucous membranes causes vomiting, nausea and burns. |

Chronic Toxicity

Carcinogenicity Contains no ingredient listed as a carcinogen.

Sensitisation No known effect.

Mutagenic Effects Not known to cause heritable genetic damage. Ames test : Not mutagenic. Micronucleus test: Not mutagenic.

Reproductive toxicity Not known to adversely affect reproductive functions and organs.

Developmental Toxicity Not known to cause birth defects or have a deleterious effect on a developing fetus.

Target Organ Effects Skin, Eyes, Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity Effects This product is not known to be hazardous to the environment.

| Chemical Name | Toxicity to algae | Toxicity to fish | Toxicity to microorganisms | Toxicity to daphnia and other aquatic invertebrates |
|---|--|--|--|--|
| Benzene sulfonamide, N-Chloro-4-methyl, sodium salt | EC50: 80 mg/L 96h Chlorella pirenoidosa EC50 (PTSA): 170 mg/L Pseudokirchnerella subcapitata, OECD 201, 72h | LC50: 31 mg/l 96h Poecilia reticulata LC50 (PTSA): 102 mg/L 96h | EC10 (PTSA): 10.5 mg/L Activated sludge, OECD 209, 3h, read across | EC50: 4.5 mg/l 48h Daphnia magna EC50: >23 mg/l (flow through conditions) NOEC: 1.1 mg/l; LOEC 3.5 mg/l 21 days (chronic study) EC50 (PTSA): 210 mg/L Daphnia magna, OECD 202 48h |

Persistence and Degradability Readily biodegradable. Hydrolysis product (PTSA): Readily biodegradable.

Bioaccumulative potential Bioaccumulation is unlikely.

| Chemical Name | log Pow | Bioconcentration factor (BCF) |
|---|---------|-------------------------------|
| Benzene sulfonamide, N-Chloro-4-methyl, sodium salt | -1.3 | |

Mobility Not expected to adsorb on soil.

PBT and vPvB assessment This substance is not considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

13. DISPOSAL CONSIDERATIONS

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| Waste disposal methods | Dispose of in accordance with federal, state, and local regulations. |
| Contaminated packaging | Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. TRANSPORT INFORMATION

According to: US DOT, Canada TDG (ground, rail and road), IMDG, ICAO/IATA, ADR.

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| UN/ID No | 3263 |
| Proper shipping name | CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (Sodium p-toluenesulfonchloramide) |
| Hazard Class | 8 |
| Packing group | III |
| Additional information | Additional information: Classification Code C8, Tunnel restriction code E, IMO/MDG EMS F-A, S-B, ADR Hazard Id (Kemmler Number): 80. |
| Emergency Response Guide Number | 154 |

15. REGULATORY INFORMATION

International Inventories

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|-------------|--------|
| TSCA | Listed |
| DSL | Listed |

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Federal Regulations

SARA 311/312 Hazardous

Categorization

| | |
|-----------------------------------|----|
| Acute Health Hazard | No |
| Chronic Health Hazard | No |
| Fire Hazard | No |
| Sudden Release of Pressure Hazard | No |
| Reactive Hazard | No |

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Not regulated

Other information

No information available

International Regulations**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D2A Very toxic materials

D2B Toxic materials

E Corrosive material

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| 16. OTHER INFORMATION |
|------------------------------|

Revision Date

04/28/2014

Revision Note

No information available.

Disclaimer

The information provided on this MSDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of Safety Data Sheet