MATERIAL SAFETY DATA SHEET

Revision Date 04/15/2014 **Version** 1
Date of the previous version -- US

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name **Halamid® Aqua**

Chemical Name Benzene sulfonamide, N-chloro-4-methyl, sodium salt
CAS-No 7080-50-4
Synonyms Sodium p-toluenesulfonchloramide; Chloramine-T trihydrate
Formula $C_7 H_7 Cl N NaO_2 S.H_2O$

Recommended Use Control of mortality in: freshwater-reared salmonids, walleye and freshwater-reared warmwater finfish
Uses advised against No information available

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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.

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, Ingestion.

Acute toxicity

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 may be hazardous to aquatic life, including invertebrates and algae. 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

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 vomitting 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 is 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

Flammable properties Not flammable. Not combustible.

Flash point 366.7 °F / 192 °C
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 flamable, 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 None.
Sensitivity to Static Discharge Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

NFPA	**Health Hazard** 3	**Flammability** 1	**Instability** 1	**Physical and chemical hazards** N/A
HMIS	**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 Do not release the undiluted product directly into natural waterways. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains, surface water or soil.

Methods for cleaning up Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source (heat, sparks or flame) is a potential explosion hazard. Sweep up spilled solid material, being careful not to create dust.

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 at temperatures below 86° F (30° C). Store away from foodstuff or animal feed. Containers should be kept tightly capped and stored in a cool, dry, well-ventilated area protected from direct sunlight and away from flammable, reducing or oxidizing materials and sources of heat and flame. Store in a manner designed to prevent spills that may result in discharge to surface waters. Exercise due caution to prevent damage or leakage from the container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Benzene sulfonamide, N-Chloro-4-methyl, sodium salt		15 mg/m³ (total dust) 5 mg/m³ (resp fraction)	

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

Personal protective equipment

Eye protection	Tightly fitting safety goggles.
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

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 / 366.7 °F
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/m³
Bulk density	540-680 kg/m³

10. STABILITY AND REACTIVITY

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)

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. Micronucleus test: Not mutagenic. Ames 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 may be hazardous to aquatic life, including invertebrates and algae.

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

Waste disposal methods

Implement procedures for properly containing, cleaning and disposing of any spilled material. Contact your State Environmental Control Agency or Hazardous Waste Representative at the nearest EPA Regional Office for guidance on disposal of unused product, empty containers, and spilled materials. Do not allow undiluted product to escape into sewage or surface water.

Contaminated packaging

Empty containers should be cleaned of residual drug before disposal or return. Follow label warnings, even after container is emptied, because empty containers can still contain drug residues.

14. TRANSPORT INFORMATION

According to: US DOT, IMDG, ICAO/IATA, ADR.

UN/ID No 3263

Proper shipping name CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. (Benzene sulfonamide, N-chloro-4-methyl, sodium salt)

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

TSCA Listed

Legend

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

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

No information available.

16. OTHER INFORMATION

Revision Date	04/15/2014
Revision Note	Not applicable.

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