

Aluminum sulfate	10043-01-3	<3
Sodium borate	1330-43-4	<2
Non-Hazardous		
Chemical Name	CAS-No	Weight %
Water	7732-18-5	40-60
Potassium acetate	127-08-2	1-5
Ammonium acetate	631-61-8	<1

4. FIRST AID MEASURES

General advice	If symptoms persist, call a physician. Show this material safety data sheet to the doctor in attendance.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation persists.
Skin contact	Wash skin with soap and water. If symptoms persist, call a physician.
Inhalation	Move to fresh air. If symptoms persist, call a physician.
Ingestion	Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.
Notes to physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point:	> 94.200
Suitable Extinguishing Media	The product is not flammable. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers / tanks with water spray.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.
Hazardous Combustion Products	Hazardous decomposition products due to incomplete combustion.

Specific hazards arising from the chemical
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA **Health Hazard - 3** **Flammability - 1** **Stability - 0**

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Ensure adequate ventilation. Avoid contact with eyes. For personal protection see section 8.
Methods for Containment	Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Cover liquid spill with sand, earth or other noncombustible absorbent material. Pick up and transfer to properly labeled containers.

Other information See Section 12 for additional information.

7. HANDLING AND STORAGE

Advice on safe handling Ensure adequate ventilation. Avoid contact with eyes. Wear personal protective equipment. For personal protection see section 8.

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	AIHA - Workplace Environmental Exposure Levels (WEELs) - TWAs	OSHA PEL	Advisory OEL
Sodium bisulfite 7631-90-5	TWA: 5 mg/m ³			
Acetic acid 64-19-7	STEL 15 ppm TWA: 10 ppm		TWA: 10 ppm TWA: 25 mg/m ³	
Sodium borate 1330-43-4	STEL 6 mg/m ³ TWA: 2 mg/m ³			
Potassium iodide 7681-11-0	TWA: 0.01 ppm			

Occupational Exposure Controls

Engineering Measures Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

General Information These recommendations apply to the product as supplied.

Respiratory protection Use only with adequate ventilation. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Eye/Face Protection Tightly fitting safety goggles. If splashes are likely to occur, wear: Face-shield.

Skin and body protection Wear suitable protective clothing.

Hand Protection Impervious gloves.

In case of full contact:			
Glove material	Glove thickness	Break through time	Remarks
Nitrile rubber	>=0.38 mm	>480 min	
Neoprene	>=0.65 mm	>240 min	
butyl-rubber	>=0.36 mm	>480 min	

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state liquid
ph 4.9
Flash point: > 94.200
Boiling point/boiling range 100 °C

Odor Slight Ammoniacal
Color light yellow
Autoignition temperature: No information available

Vapor Pressure 24 hPa @ 20 °C
Vapor density No information available 0.6
Density No information available
Water Solubility No information available completely soluble
Melting point/range: No information available
Specific Gravity 1.29
Bulk Density: No information available

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Incompatible products	Strong acids. Strong oxidizing agents. Strong bases. Sodium hypochlorite. Halogenated compounds.
Conditions to Avoid	Do not freeze. To avoid thermal decomposition, do not overheat.
Hazardous Decomposition Products	Carbon oxides. Sulfur oxides. Nitrogen oxides (NOx). Ammonia. Fumes of aluminum or aluminum oxide.
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	Contact with strong acids liberates sulfur dioxide. Contact with strong bases liberates ammonia. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas).

11. TOXICOLOGICAL INFORMATION

Acute toxicity - Product Information

Skin	No known effect. May cause skin irritation and/or dermatitis.
Eyes	Causes serious eye irritation.
Inhalation	May cause irritation of respiratory tract. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.
Ingestion	May be harmful if swallowed.

Acute toxicity - Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water	90,000 mg/kg (Rat)		
Ammonium thiosulfate	> 2000 mg/kg (Rat)		
Sodium bisulfite	1420 mg/kg (Rat)		
Potassium acetate	3250 mg/kg (Rat) Oral LD50 Rat 3250 mg/kg (Source: NLM_CIP)		

Acetic acid	3310 mg/kg (Rat)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h Inhalation LC50 Rat 11.4 mg/L 4 h (Source: NLM_CIP)
Aluminum sulfate	> 5000 mg/kg (Rat)		
Sodium borate	2660 mg/kg (Rat) Oral LD50 Rat 2660 mg/kg (Source: JAPAN_GHS)	2000 mg/kg (Rabbit) Dermal LD50 Rabbit >2000 mg/kg (Source: IUCLID)	
Chemical Name		Other applicable information	
Acetic acid		Severe eye irritation Severe skin irritation Acute overexposure to extremely high airborne concentrations of respiratory irritants has been associated with development of an asthma-like reactive airways syndrome (RADS) in susceptible individuals. Extremely high airborne concentrations are not generated during normal conditions of use but may occur following a spill. The potential to generate extremely high airborne concentrations in a spill situation depends upon physical factors such as the concentration of the solution, the volume of the spill, the surface area of the spill, the size of the room where the spill occurred, and the ventilation rate in the room.	
Aluminum sulfate		Severe eye irritation No skin irritation Cell transformation assay: negative Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea	
Sodium borate		Based on repeated-dose ingestion studies in animals, may cause adverse reproductive and developmental effects. However, the doses administered were many times those to which humans would normally be exposed.	
Potassium iodide		Repeated ingestion of large amounts of iodide salts may cause goiter, hypothyroidism, and iodism. Symptoms of overexposure include skin rash, runny nose, headache, weakness, weight loss and irritation of the mucous membranes.	

Subchronic toxicity No information available

Carcinogenicity Contains no ingredient listed as a carcinogen.

Reproductive toxicity The product contains no substances known to be hazardous to health in concentrations which need to be taken into account.

Developmental Toxicity The product contains no substances classified as hazardous to health in concentrations which should be taken into account according to EC directives. Boron: below limit for consideration.

Target Organ Effects Respiratory system, Eyes, Skin, Teeth.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects The environmental impact of this product has not been fully investigated.

Component Information

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Sodium bisulfite			119: 48 h Daphnia magna mg/L EC50
Potassium acetate		6800: 96 h Oncorhynchus mykiss mg/L LC50 semi-static	

Acetic acid		75: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static 79: 96 h <i>Pimephales promelas</i> mg/L LC50 static	65: 48 h <i>Daphnia magna</i> mg/L EC50 Static
Sodium borate	2.6 - 21.8: 96 h <i>Pseudokirchneriella subcapitata</i> mg/L EC50 static 158: 96 h <i>Desmodesmus subspicatus</i> mg/L EC50	340: 96 h <i>Limanda limanda</i> mg/L LC50	1085 - 1402: 48 h <i>Daphnia magna</i> mg/L LC50

Persistence and degradability Readily biodegradable.

Bioaccumulation: - No information available

Mobility - No information available

Chemical Name	log Pow
Acetic acid	-0.31

Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated packaging Do not re-use empty containers. Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

The information given below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions. Please consult the product packaging for further details.

DOT Not regulated

TDG Not regulated

ICAO/IATA Not regulated

IMDG/IMO Not regulated

For transportation information, go to: <http://ship.carestream.com>

15. REGULATORY INFORMATION

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
E Corrosive material
Non-controlled



International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

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

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

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

16. OTHER INFORMATION

Disclaimer for Label

The data below reflects current legislative requirements whereas the product in your possession may carry a different version of the label depending on the date of manufacture.



Warning!

- Contains:

Hazardous Components

Chemical Name	CAS-No	Weight %
Ammonium thiosulfate	7783-18-8	35-45
Sodium bisulfite	7631-90-5	<3
Acetic acid	64-19-7	<3
Ammonium bisulfite	10192-30-0	1-5
Aluminum sulfate	10043-01-3	<3
Sodium borate	1330-43-4	<2

Causes serious eye irritation.

Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists. Ensure adequate ventilation. Wash thoroughly after handling.

Additional information is given in the Material Safety Data Sheet.

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

