Carestream DENTAL

SAFETY DATA SHEET

Issuing date 2014-05-16 **Revision Date** 2014-04-02 **Version** 1

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

Product name: GBX Developer and Replenisher

Product code: 1901859DEV

Supplier Carestream Health, Inc., 150 Verona Street, Rochester, New York 14608

Emergency telephone number
CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

For other information contact: 800-328-2910

Synonyms PCD 4861
Product Use: Photographic chemical. Restricted to professional users.

2. HAZARDS IDENTIFICATION

Classification

Serious eye damage/eye Irritation	Category 1
Skin Sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2

Label elements

Emergency Overview

Signal word **Danger**

hazard statements
Causes serious eye damage
May cause an allergic skin reaction
Suspected of causing genetic defects
Suspected of causing cancer

Contains Hydroquinone
Appearance Liquid, light yellow **Physical state** liquid **Odor** Odorless

Precautionary Statements - Prevention
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement - Response
IF exposed or concerned: Get medical advice/attention.
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Skin
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Precautionary Statement - Storage
Store in a closed container.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)
• Not applicable

Other Information
May be harmful if swallowed. Very toxic to aquatic life.

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms PCD 4861.

Chemical Name	CAS-No	Weight %	Trade Secret
Water 7732-18-5	7732-18-5	60-70	*
Potassium sulfite 10117-38-1	10117-38-1	5-10	*
Diethylene glycol 111-46-6	111-46-6	5-10	*
Hydroquinone 123-31-9	123-31-9	5-10	*
Sodium sulfite 7757-83-7	7757-83-7	5-10	*
Potassium carbonate 584-08-7	584-08-7	1-5	*
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt 140-01-2	140-01-2	1-5	*
Sodium borate 1330-43-4	1330-43-4	0.1-1	*

*The exact percentages (concentrations) have been withheld as trade secrets.

4. FIRST AID MEASURES

First Aid Measures

General advice If symptoms persist, call a physician.

Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Get medical attention immediately if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Ingestion	If swallowed, call a poison control center or doctor immediately. Do not induce vomiting without medical advice. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Main Symptoms	May cause an allergic skin reaction. Irritation. Rashes. Coughing and/ or wheezing. Central nervous system depression.

Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Dry chemical, CO_2, water spray or regular foam.

Unsuitable Extinguishing Media
Do not scatter spilled material with high pressure water streams.

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

Hazardous Combustion Products
Carbon oxides. Sulfur oxides.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Avoid contact with the skin and the eyes. For personal protection see section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

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

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Incompatible with oxidizing agents.

Incompatible products Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	AIHA - Workplace Environmental Exposure Levels (WEELs) - TWAs	OSHA PEL	Advisory OEL
Diethylene glycol 111-46-6	-	TWA: 10 mg/m³	-	
Hydroquinone 123-31-9	TWA: 1 mg/m³		TWA: 2 mg/m³	
Sodium borate 1330-43-4	STEL 6 mg/m³ TWA: 2 mg/m³		-	

Appropriate engineering controls

Engineering Measures Ensure adequate ventilation. Apply technical measures to comply with the occupational exposure limits. Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Safety glasses with side-shields. If splashes are likely to occur, wear:. Goggles.

Skin and body protection Wear protective gloves/clothing. Skin contact should be prevented through use of suitable protective clothing, gloves, and footwear, selected with regard of use conditions and exposure potential.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures	When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid		
Appearance	Liquid, light yellow	**Odor**	Odorless
Color	light yellow	**Odor Threshold**	No information available

Property	Values	Remarks/ • Method
ph	10.2	No information available
Melting point/range:		No information available
Boiling point/boiling range	> 100 °C	No information available
Flash Point	> 93.3 °C > 201.200 °F	No information available.
Evaporation rate		No information available
Flammability (solid, gas)		
upper flammability limit		
lower flammability limit		
Vapor pressure	24 mbar @ 20 °C	No information available
Vapor density	0.6	No information available
Specific Gravity		No information available
Water Solubility	completely soluble	No information available
Solubility in other solvents		No information available
Partition coefficient: n-octanol/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available
Viscosity, kinematic		No information available
Viscosity, dynamic		No information available
Explosive properties	No information available	
Oxidizing Properties	No information available	

Other information

Softening point	No information available
Density VALUE	No information available
Bulk Density VALUE	No information available

10. STABILITY AND REACTIVITY

Reactivity
None under normal use conditions.

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Contact with strong acids liberates sulfur dioxide.

Conditions to Avoid
Heat, flames and sparks.

Incompatible Materials
Strong oxidizing agents. Acids.

Hazardous Decomposition Products
Carbon oxides, Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation No hazard from product as supplied. May cause irritation of respiratory tract. Contact with strong acids liberates sulfur dioxide. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Eye contact Irritating to eyes.

Skin contact May cause skin irritation and/or dermatitis. Prolonged or repeated contact may dry skin and cause irritation. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Ingestion May be harmful if swallowed. May cause adverse kidney effects. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Toxicology data for the components

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Diethylene glycol 111-46-6	12565 mg/kg (Rat)	11890 mg/kg (Rabbit)	-
Hydroquinone 123-31-9	320 mg/kg (Rat) Oral LD50 Rat 320 mg/kg (Source: IUCLID)	> 4800 mg/kg (Rat)	-
Sodium sulfite 7757-83-7	820 mg/kg (Rat) Oral LD50 Rat 820 mg/kg (Source: IUCLID)	-	22 mg/L (Rat) 1 h Inhalation LC50 Rat >22 mg/L 1 h (Source: IUCLID)
Potassium carbonate 584-08-7	1870 mg/kg (Rat) Oral LD50 Rat 1870 mg/kg (Source: IUCLID)	>2000 mg/kg (Rabbit)	-
Sodium borate 1330-43-4	2660 mg/kg (Rat) Oral LD50 Rat 2660 mg/kg (Source: IUCLID)	2000 mg/kg (Rabbit) Dermal LD50 Rabbit >2000 mg/kg (Source: IUCLID)	-

Chemical Name	Other applicable information
Potassium sulfite	Moderate skin irritation
Diethylene glycol	Mild skin irritation Mild eye irritation Can cause kidney damage and CNS effects following ingestion. Repeated oral exposure to high doses can cause liver damage.

Hydroquinone	Moderate eye irritation Causes sensitization on guinea-pigs. Mild skin irritation Can be absorbed through skin. (1.1 ug/cm2/hr) Negative in bacterial mutagenicity assays. Evidence for mutagenicity (chromosome breakage, sister-chromatid exchanges) in in vivo and in vitro animal studies. Hydroquinone has been classified as a Category 3 mutagen and carcinogen by the European Union based on testing of rats and mice given hydroquinone by stomach tube or at high dietary levels. The International Agency for Research on Cancer (IARC) under ranking for cancer potential has classified hydroquinone in Group 3, i.e. "not classifiable" as a carcinogen. In the European Union a Category 3 mutagen attracts the risk phrase R68 "Possible risk of irreversible effects" at concentrations above 1%, and a Category 3 carcinogen attracts the risk phrase R40 "Limited evidence of a carcinogenic effect" at concentrations above 1%. Exposure to products containing such substances should be controlled to below established control limits and special care should be taken with pregnant or breast-feeding women to ensure appropriate controls are in place to control the risk.
Sodium sulfite	No skin irritation Mild eye irritation
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.

Information on toxicological effects

Symptoms Allergic skin reactions including rash, dermatitis, irritation, and itching.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Severe eye irritant.
Sensitization May cause sensitization by skin contact.
mutagenic effects No specific testing was done on this product. Mutagenic testing of the hazardous ingredient in this product has resulted in some positive mutagenic results.
Carcinogenicity Contains a known or suspected carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydroquinone 123-31-9	A3			

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen

Reproductive toxicity Contains ingredients that are suspected reproductive hazards. However, based on available data the product should not be classified for reproductive effects.
STOT - single exposure No information available
STOT - repeated exposure No information available
Chronic toxicity Effects expected to be similar to those seen acutely.
Target Organ Effects Skin, Eyes, Respiratory system, Central nervous system, Kidney, Liver.
Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 2079 mg/kg
ATEmix (dermal) 30560 mg/kg
ATEmix (inhalation-dust/mist) 59.9 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Diethylene glycol 111-46-6		75200: 96 h Pimephales promelas mg/L LC50 flow-through		84000: 48 h Daphnia magna mg/L EC50
Hydroquinone 123-31-9	0.335: 72 h Pseudokirchneriella subcapitata mg/L EC50	0.1 - 0.18: 96 h Pimephales promelas mg/L LC50 static 0.044: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.044: 96 h Pimephales promelas mg/L LC50 flow-through 0.17: 96 h Brachydanio rerio mg/L LC50		0.29: 48 h Daphnia magna mg/L EC50
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt 140-01-2	2.6: 72 h Desmodesmus subspicatus mg/L EC50	1005 - 1250: 96 h Lepomis macrochirus mg/L LC50 static 300: 96 h Pimephales promelas mg/L LC50 static		500: 48 h Daphnia magna mg/L EC50
Sodium borate 1330-43-4	2.6 - 21.8: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 158: 96 h Desmodesmus subspicatus mg/L EC50	340: 96 h Limanda limanda mg/L LC50		1085 - 1402: 48 h Daphnia magna mg/L LC50

Persistence and degradability
No data is available on the product itself. Expected to be readily biodegradable.

Bioaccumulation:
No information available.

Chemical Name	log Pow
Diethylene glycol 111-46-6	-1.98
Hydroquinone 123-31-9	0.5
Sodium sulfite 7757-83-7	-4
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt 140-01-2	-3.05

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Methods Should not be released into the environment. Dispose of in accordance with local regulations.

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

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Hydroquinone 123-31-9		Included in waste stream: K060		

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

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substances, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
Special Provisions	8, 146, 335, IB3, T4, TP1, TP29
Emergency Response Guide Number	171

TDG

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III

ICAO/IATA

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
ERG Code	9L
Special Provisions	A97, A158

IMDG/IMO

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
EmS No.	F-A, S-F
Special Provisions	179, 274, 335, 909

For transportation information, go to: http://ship.carestreamhealth.com.

15. REGULATORY INFORMATION

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

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	SARA 313 - Threshold Values %
Hydroquinone - 123-31-9	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
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).

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Diethylene glycol - 111-46-6		Group I		
Hydroquinone - 123-31-9		Group I		

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	SARA Product RQ
Hydroquinone	100 lb	100 lb	

TSCA

Component	U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances
Hydroquinone 123-31-9 (5-10)	10/04/1984

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Diethylene glycol			X		X
Hydroquinone	X	X	X	X	X
Sodium borate	X		X		

International Regulations

Mexico - Grade Moderate risk, Grade 2

Chemical Name	Carcinogen Status	Exposure Limits
Hydroquinone	A3	Mexico: TWA 2 mg/m³
Sodium borate		Mexico: TWA 1 mg/m³

16. OTHER INFORMATION

NFPA	Health Hazard 2	Flammability 1	Instability -
HMIS	Health Hazard 2*	Flammability 1	Physical Hazard 0

Issuing date 2014-02-05
Revision Date 2014-04-02
Revision Note Update to OSHA GHS SDS format

Disclaimer

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.

End of Safety Data Sheet

Carestream DENTAL

SAFETY DATA SHEET

Issuing date 2014-04-03 **Revision Date** 2014-04-03 **Version** 1

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

Product name: GBX Fixer and Replenisher

Product code: 1901859FIX

Supplier Carestream Health, Inc., 150 Verona Street, Rochester, New York 14608

Emergency telephone number
CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

For other information contact: 800-328-2910

Product Use: Restricted to professional users. Photographic chemical.

2. HAZARDS IDENTIFICATION

Classification

Serious eye damage/eye Irritation	Category 2A

Label elements

Emergency Overview

Signal word	**Warning**

hazard statements
Causes serious eye irritation

Appearance Colorless Liquid **Physical state** liquid **Odor** Ammonia

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling. Wear eye/face protection.

Precautionary Statement - Response
IF exposed or concerned.
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Hazards not otherwise classified (HNOC)

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Other Information

May be harmful if swallowed.
4.15% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade Secret
Water 7732-18-5	7732-18-5	40-50	*
Ammonium thiosulfate 7783-18-8	7783-18-8	30-40	*
Sodium bisulfite 7631-90-5	7631-90-5	1-5	*
Ammonium bisulfite 10192-30-0	10192-30-0	1-5	*
Potassium acetate 127-08-2	127-08-2	1-5	*
Ammonium acetate 631-61-8	631-61-8	1-5	*
Sodium borate 1330-43-4	1330-43-4	1-2	*
Aluminum sulfate 10043-01-3	10043-01-3	1-5	*

*The exact percentages (concentrations) have been withheld as trade secrets.

4. FIRST AID MEASURES

First Aid Measures

General advice — If symptoms persist, call a physician.

Eye contact — In case of contact, immediately flush eyes with plenty of water. Get medical attention immediately if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Get medical attention immediately if symptoms occur. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Inhalation — Move to fresh air. Get medical attention immediately if symptoms occur.

Ingestion — Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Main Symptoms — Irritation.

Indication of any immediate medical attention and special treatment needed

Notes to physician — Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
None.

Specific hazards arising from the chemical
Dried product residue can act as a reducing agent. Reacts violently with oxidizing materials. May cause spontaneous heating and ignition when absorbed on combustible, porous material (e.g. rags, paper, sawdust, cotton, clothing).

Hazardous Combustion Products
Carbon oxides, Nitrogen oxides (NOx), Sulfur oxides.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with eyes. For personal protection see section 8. Ensure adequate ventilation.

Environmental precautions

Environmental precautions	Do not allow material to contaminate ground water system. Try to prevent the material from entering drains or water courses. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling

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

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions	Keep container tightly closed in a dry and well-ventilated place.
Incompatible products	Acids. Strong bases. Oxidizing agents. Halogenated compounds. Contact with strong acids liberates sulfur dioxide.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

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/m³		-	
Sodium borate 1330-43-4	STEL 6 mg/m³ TWA: 2 mg/m³		-	
Acetic acid 64-19-7	STEL 15 ppm TWA: 10 ppm		TWA: 10 ppm TWA: 25 mg/m³	

Appropriate engineering controls

Engineering Measures Apply technical measures to comply with the occupational exposure limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Safety glasses with side-shields.

Skin and body protection Wear protective gloves/clothing. Skin contact should be prevented through use of suitable protective clothing, gloves, and footwear, selected with regard of use conditions and exposure potential.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid		
Appearance	Colorless Liquid	**Odor**	Ammonia
Color	colorless	**Odor Threshold**	No information available

Property	Values	Remarks/ • Method
ph	4.9	No information available
Melting point/range:		No information available
Boiling point/boiling range	> 100 °C	No information available
Flash Point		No information available.
Evaporation rate		No information available
Flammability (solid, gas)		
upper flammability limit		
lower flammability limit		
Vapor pressure	24 mbar @ 20 °C	No information available
Vapor density	0.6	No information available
Specific Gravity		No information available
Water Solubility	completely soluble	No information available
Solubility in other solvents		No information available
Partition coefficient: n-octanol/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available

Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing Properties	No information available

Other information

Softening point	No information available
Density VALUE	No information available
Bulk Density VALUE	No information available

10. STABILITY AND REACTIVITY

Reactivity
None under normal use conditions.

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Contact with strong acids liberates sulfur dioxide. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas). Contact with bases liberates flammable material and ammonia.

Hazardous Polymerization
Hazardous polymerization does not occur.

Conditions to Avoid
Do not freeze.

Incompatible Materials
Acids. Strong bases. Oxidizing agents. Halogenated compounds. Contact with strong acids liberates sulfur dioxide.

Hazardous Decomposition Products
Ammonia. Chloramine. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea. Contact with strong acids liberates sulfur dioxide. May cause irritation of respiratory tract.
Eye contact	Expected to be an irritant based on components.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Ingestion	May be harmful if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Toxicology data for the components

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ammonium thiosulfate 7783-18-8	> 2000 mg/kg (Rat)	-	-
Sodium bisulfite 7631-90-5	1420 mg/kg (Rat)	-	-

Potassium acetate 127-08-2	3250 mg/kg (Rat) Oral LD50 Rat 3250 mg/kg (Source: NLM_CIP)	-	-
Sodium borate 1330-43-4	2660 mg/kg (Rat) Oral LD50 Rat 2660 mg/kg (Source: IUCLID)	2000 mg/kg (Rabbit) Dermal LD50 Rabbit >2000 mg/kg (Source: IUCLID)	-
Aluminum sulfate 10043-01-3	> 5000 mg/kg (Rat)	-	-

Chemical Name	Other applicable information
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.
Aluminum sulfate	Severe eye irritation No skin irritation Cell transformation assay: negative Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea
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 occured, and the ventilation rate in the room.

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
mutagenic effects No information available.
Carcinogenicity Contains no ingredient listed as a carcinogen.
Reproductive toxicity Contains a known or suspected reproductive toxin. However, based on available data the product should not be classified for reproductive effects.
STOT - single exposure No information available
STOT - repeated exposure No information available
Chronic toxicity Prolonged exposure may cause chronic effects.
Target Organ Effects Eyes, Skin, Respiratory system.
Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 4.15% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document .
ATEmix (oral) 4427 mg/kg
ATEmix (dermal) 59,282.35

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Sodium bisulfite 7631-90-5				119: 48 h Daphnia magna mg/L EC50
Potassium acetate 127-08-2		6800: 96 h Oncorhynchus mykiss mg/L LC50 semi-static		
Sodium borate 1330-43-4	2.6 - 21.8: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 158: 96 h Desmodesmus subspicatus mg/L EC50	340: 96 h Limanda limanda mg/L LC50		1085 - 1402: 48 h Daphnia magna mg/L LC50
Acetic acid 64-19-7		75: 96 h Lepomis macrochirus mg/L LC50 static 79: 96 h Pimephales promelas mg/L LC50 static		65: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability
Expected to be readily biodegradable.

Bioaccumulation:
No information available.

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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.carestreamhealth.com.

15. REGULATORY INFORMATION

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

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	SARA 313 - Threshold Values %
Ammonium thiosulfate - 7783-18-8	1.0
Ammonium bisulfite - 10192-30-0	1.0
Ammonium acetate - 631-61-8	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium bisulfite	5000 lb			X
Ammonium bisulfite	5000 lb			X
Ammonium acetate	5000 lb			X
Aluminum sulfate	5000 lb			X
Acetic acid	5000 lb			X

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Acetic acid - 64-19-7		Group II		

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	SARA Product RQ
Sodium bisulfite	5000 lb		
Ammonium bisulfite	5000 lb		
Ammonium acetate	5000 lb		
Aluminum sulfate	5000 lb		

TSCA

Chemical Name	U.S. - TSCA (Toxic Substances Control Act) - Section 8(a) - Chemical-Specific Reporting and Recordkeeping
Sodium bisulfite	PAIR: 01/26/1994

Component	U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances
Sodium bisulfite 7631-90-5 (1-5)	01/26/1994

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ammonium thiosulfate	X		X		
Sodium bisulfite	X	X	X		X
Ammonium bisulfite	X	X	X		
Ammonium acetate	X	X	X		
Sodium borate	X		X		
Aluminum sulfate	X	X	X		

International Regulations

Mexico - Grade Moderate risk, Grade 2

Chemical Name	Carcinogen Status	Exposure Limits
Sodium borate		Mexico: TWA 1 mg/m³
Aluminum sulfate		Mexico: TWA 2 mg/m³

16. OTHER INFORMATION

NFPA	Health Hazard 2	Flammability 1	Instability 0
HMIS	Health Hazard 2	Flammability 1	Physical Hazard 0

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Disclaimer

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.

End of Safety Data Sheet