SAFETY DATA SHEETS

This SDS packet was issued with item:

070992081

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

073101433

SAFETY DATA SHEET

Issuing date 03/11/2016 **Revision Date** 03/11/2016 **Version** 2

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

Product name: Rapid Access Fixer

Product code: 1838374FIX

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: Photographic chemical. Restricted to professional users.

2. HAZARDS IDENTIFICATION

Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Emergency Overview

Appearance Liquid **Physical state** liquid **Odor** Odorless

Hazards not otherwise classified (HNOC)
• Not applicable

Other Information
May be harmful if swallowed. May be harmful in contact with skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade Secret
Water 7732-18-5	7732-18-5	60 - 65	*
Ammonium thiocyanate 1762-95-4	1762-95-4	25 - 30	*
Ammonium thiosulfate	7783-18-8	10 - 15	*

7783-18-8			
Sodium bisulfite 7631-90-5	7631-90-5	<1	*
Acetic acid 64-19-7	64-19-7	< 1	*

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

4. FIRST AID MEASURES

First Aid Measures

General advice Show this material safety data sheet to the doctor in attendance.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes and 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. Get medical attention immediately if symptoms occur.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention immediately if symptoms occur.

Protection of First-aiders Use personal protective equipment.

Most important symptoms and effects, both acute and delayed

Main Symptoms May cause skin and eye irritation.

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, alcohol-resistant foam or water spray.

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical
Fire or excessive heat may produce hazardous decomposition products.

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

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. Use personal protective equipment. For personal protection see section 8.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

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 Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. 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. Store in original container. Do not allow evaporation to dryness.

Incompatible products Acids. Sodium hypochlorite. Strong bases. Oxidizing agents. Halogenated compounds. Contact with a strong oxidizer or acid may liberate hydrogen cyanide gas. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas).

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/m^3		-	
Acetic acid 64-19-7	STEL 15 ppm TWA: 10 ppm		TWA: 10 ppm TWA: 25 mg/m^3	

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 top and 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 Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before

re-use. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid		
Appearance	Liquid	**Odor**	Odorless
Color	Clear colorless	**Odor Threshold**	No information available

Property	**Values**	**Remarks/ • Method**
ph	5.4	
Melting point/range:		No information available
Boiling point/boiling range	> 100 °C / 212 °F	No information available
Flash Point		No information available.
Evaporation rate		No information available
Flammability (solid, gas)		No information available
upper flammability limit		
lower flammability limit		
Vapor pressure	22 mbar @ 20 °C	No information available
Vapor density	0.4	No information available
Specific Gravity	1.12	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
Oxidizing Properties	No information available	
Explosive properties	No information available	

Other information		No information available
Softening point		
Molecular Weight	No information available	No information available
Density		No information available
Bulk Density:		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 a strong oxidizer or acid may liberate hydrogen cyanide gas. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas).

Conditions to Avoid
Heat, flames and sparks.

Incompatible Materials
Acids. Sodium hypochlorite. Strong bases. Oxidizing agents. Halogenated compounds. Contact with a strong oxidizer or acid may liberate hydrogen cyanide gas. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas).

Hazardous Decomposition Products
Ammonia. Chloramine. Sulfur oxides. Nitrogen oxides (NOx). Cyanides. Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation Expected to be a low hazard for recommended handling. Contact with a strong oxidizer or acid may liberate hydrogen cyanide gas. Contact with strong acids liberates sulfur dioxide.

Eye contact May cause irritation.

Skin contact May cause irritation.

Ingestion May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Toxicology data for the components

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	90,000 mg/kg (Rat)	-	-
Ammonium thiocyanate 1762-95-4	750 mg/kg (Rat) Oral LD50 Rat 750 mg/kg (Source: NLM_CIP)	-	-
Ammonium thiosulfate 7783-18-8	> 2000 mg/kg (Rat)	-	-
Sodium bisulfite 7631-90-5	1420 mg/kg (Rat)	-	-
Ammonium sulfite 10196-04-0	2500 mg/kg (Rat)	-	-
Acetic acid 64-19-7	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)

Chemical Name	Other applicable information
Ammonium thiocyanate	Moderate eye irritation Moderate skin irritation Overexposure to thiocyanates has been shown to cause thyroid enlargement, decrease in metabolic rate, and symptoms of hypothyroidism in humans and animals. Hydrogen cyanide gas may be liberated upon contact with strong oxidizers or acids. Hydrogen cyanide gas may cause dizziness, headache, rapid respiration, rapid pulse, unconsciousness, convulsions and death.
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 Irritant. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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

Irritation	Irritating to eyes and skin.
Sensitization	May cause sensitization of susceptible persons.
mutagenic effects	No information available.
Carcinogenicity	Contains no ingredient listed as a carcinogen.
Reproductive toxicity	No information available.
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Chronic toxicity	May cause adverse thyroid effects. AMMONIUM THIOCYANATE: Overexposure to thiocyanates has been shown to cause thyroid enlargement, decrease in metabolic rate, and symptoms of hypothyroidism in humans and animals.
Subchronic toxicity	No information available.
Target Organ Effects	Eyes, Skin, Respiratory system, Thyroid, Central nervous system.
Other adverse effects	May cause adverse thyroid effects. Overexposure to thiocyanates has been shown to cause thyroid enlargement, decrease in metabolic rate, and symptoms of hypothyroidism in humans and animals.
Aspiration Hazard	No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity

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

ATEmix (oral)	2524 mg/kg
ATEmix (dermal)	4120 mg/kg
ATEmix (inhalation-dust/mist)	5.6 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

10.46% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Sodium bisulfite 7631-90-5		240: 96 h Gambusia affinis mg/L LC50 static		119: 48 h Daphnia magna mg/L EC50
Acetic acid 64-19-7		75: 96 h Lepomis macrochirus mg/L LC50 static 79: 96 h Pimephales promelas mg/L LC50 static		47: 24 h Daphnia magna mg/L EC50 65: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability

Expected to be readily biodegradable.

Bioaccumulation:

No information available.

Chemical Name	log Pow
Acetic acid 64-19-7	-0.31

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.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Acetic acid 64-19-7	Toxic Corrosive Ignitable

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

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
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 thiocyanate - 1762-95-4	1.0
Ammonium thiosulfate - 7783-18-8	1.0
Ammonium sulfite - 10196-04-0	1.0

SARA 311/312 Hazard Categories

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

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
Ammonium thiocyanate	5000 lb			X
Sodium bisulfite	5000 lb			X
Ammonium sulfite	5000 lb			X
Acetic acid	5000 lb			X

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

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
Ammonium thiocyanate	5000 lb		
Sodium bisulfite	5000 lb		
Ammonium sulfite	5000 lb		
Acetic acid	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)	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 thiocyanate	X	X	X		X
Ammonium thiosulfate	X		X		
Sodium bisulfite	X	X	X		X
Ammonium sulfite	X	X	X		
Acetic acid	X	X	X		X

International Regulations

Mexico - Grade Moderate risk, Grade 2

Chemical Name	Carcinogen Status	Exposure Limits
Acetic acid		Mexico: TWA 10 ppm Mexico: TWA 25 mg/m^3

		Mexico: STEL 15 ppm Mexico: STEL 37 mg/m^3

16. OTHER INFORMATION

NFPA	**Health Hazard** 4	**Flammability** 1	**Instability** -
HMIS	**Health Hazard** 1*	**Flammability** 1	**Physical Hazard** 1

Revision Date 03/11/2016
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

SAFETY DATA SHEET

Issuing date 2014-08-20 **Revision Date** 2014-05-08 **Version** 1

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

Product name: Rapid Access Developer

Product code: 1838374DEV

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: Photographic chemical. Restricted to professional users.

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 1
Serious eye damage/eye Irritation	Category 1
Skin Sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Corrosive to metals	Category 1

Label elements

Emergency Overview

Signal word **Danger**

hazard statements
Causes severe skin burns and eye damage
May cause an allergic skin reaction
Suspected of causing genetic defects
Suspected of causing cancer
May be corrosive to metals

Appearance Liquid **Physical state** liquid **Odor** Slight

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. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves. Keep only in original container.

Precautionary Statement - Response
Immediately call a POISON CENTER or doctor/physician.
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 (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
Spill
Absorb spillage to prevent material damage.

Precautionary Statement - Storage
Store in a closed container. Store in corrosive resistant container with a resistant inliner.

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

Hazards not otherwise classified (HNOC)
• Not applicable

Other Information
Very toxic to aquatic life.

8.717% 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	>60	*
Potassium sulfite 10117-38-1	10117-38-1	5-10	*
Hydroquinone 123-31-9	123-31-9	5-10	*
Sodium borate 1330-43-4	1330-43-4	0.1-1	*
Potassium hydroxide 1310-58-3	1310-58-3	<0.01	*

*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 Immediate medical attention is required. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

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.

Most important symptoms and effects, both acute and delayed

Main Symptoms Causes severe skin burns and eye damage. Rashes. Difficulty breathing. Burning. Coughing and/ or wheezing.

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
Do not use a solid water stream as it may scatter and spread fire.

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

Hazardous Combustion Products
Carbon 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 For personal protection see section 8. Ensure adequate ventilation.

Environmental precautions

Environmental precautions Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. Prevent further leakage or spillage if safe to do so.

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 Strong acids. Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines .

Chemical Name	ACGIH TLV	AIHA - Workplace Environmental Exposure Levels (WEELs) - TWAs	OSHA PEL	Advisory OEL
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		-	
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m³		-	
Benzyl alcohol 100-51-6	-	TWA: 10 ppm	-	
Polyethylene glycol 25322-68-3	-	TWA: 10 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 Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid		
Appearance	Liquid	**Odor**	Slight
Color	clear light yellow	**Odor Threshold**	No information available

Property	**Values**	**Remarks/ • Method**
ph	12.2	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)		No information available
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 acids. Oxidizing agents.

Hazardous Decomposition Products
Carbon oxides, Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation Inhalation of mist is expected to cause respiratory irritation. Contact with strong acids liberates sulfur dioxide.

Eye contact Expected to be severely irritating or corrosive based on components present in formulation and the pH of the overall product.

Skin contact Expected to be severely irritating or corrosive based on components present in formulation and the pH of the overall product.

Ingestion May be harmful if swallowed. Can burn mouth, throat, and stomach. 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
Hydroquinone 123-31-9	320 mg/kg (Rat) Oral LD50 Rat 320 mg/kg (Source: IUCLID)	> 4800 mg/kg (Rat)	-
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)	-
Potassium hydroxide 1310-58-3	214 mg/kg (Rat) Oral LD50 Rat 214 mg/kg (Source: IUCLID)	-	-
Benzyl alcohol 100-51-6	1230 mg/kg (Rat) Oral LD50 Rat 1230 mg/kg (Source: IUCLID)	2 g/kg (Rabbit) Dermal LD50 Rabbit 2 g/kg (Source: NLM_CIP)	8.8 mg/L (Rat) 4 h Inhalation LC50 Rat 8.8 mg/L 4 h (Source: NLM_CIP)
Polyethylene glycol 25322-68-3	-	20 mL/kg (Rabbit) Dermal LD50 Rabbit >20 mL/kg (Source: IUCLID)	-

Chemical Name	Other applicable information
Potassium sulfite	Moderate skin irritation

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 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 hydroxide	Severe skin irritation Causes eye burns

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

Corrosivity Based on pH, may be corrosive to skin and eyes.

Sensitization This mixture contains hydroquinone which is classified as a dermal sensitizer in some jurisdictions. A very similar mixture was negative in dermal sensitization studies with and without prior sensitization to hydroquinone. Based on the results of these studies, this mixture is not expected to present a dermal sensitization hazard to humans. 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.

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 8.717% 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) 5378 mg/kg

ATEmix (dermal) 80672 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life.

8.481% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
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
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
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
Benzyl alcohol 100-51-6		10: 96 h Lepomis macrochirus mg/L LC50 static 460: 96 h Pimephales promelas mg/L LC50 static		23: 48 h water flea mg/L EC50

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

Bioaccumulation:
No information available.

Chemical Name	log Pow
Hydroquinone 123-31-9	0.5
Potassium hydroxide 1310-58-3	0.65 0.83

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		

Chemical Name	California Hazardous Waste Status
Potassium hydroxide 1310-58-3	Toxic Corrosive

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	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium hydroxide
Hazard class	8
Packing Group	III
Special Provisions	IB3, T7, TP1, TP28
Emergency Response Guide Number	154

TDG

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium hydroxide
Hazard class	8
Packing Group	III

ICAO/IATA

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium hydroxide
Hazard class	8
Packing Group	III
ERG Code	8L
Special Provisions	A3, A803

IMDG/IMO

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium hydroxide
Hazard class	8
Packing Group	III
EmS No.	F-A, S-B
Special Provisions	223, 274
Marine pollutant	Hydroquinone

This corrosive material, as per 49 CFR §173.154 and when the product meets the packaging requirements of 49 CFR §173.154 (b)(2) [inner packagings not over 5.0 L (1.3 gallons) net capacity each for liquid] is excepted from labeling and placarding requirements so long as the material is not offered for transport by aircraft.

For transportation information, go to: http://ship.carestream.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	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Potassium hydroxide	1000 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
Hydroquinone - 123-31-9		Group I		
Benzyl alcohol - 100-51-6		Group III		

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	
Potassium hydroxide	1000 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
Hydroquinone	X	X	X	X	X
Sodium borate	X		X		
Potassium hydroxide	X	X	X		X
Benzyl alcohol	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** 3	**Flammability** 1	**Instability** -
HMIS	**Health Hazard** 3*	**Flammability** 1	**Physical Hazard** 0

Issuing date 2014-02-05
Revision Date 2014-05-08
Revision Note (M)SDS sections updated

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