

MATERIAL SAFETY DATA SHEET

Issuing date 2013-11-22

Revision Date 2013-11-22

Version 3

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

Product name: KODAK Medical X-Ray Liquid Developer and Replenisher, Part A
X-OMAT MX Developer and Replenisher, Part A

Product code: 8344061A

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 6302

Product Use: Restricted to professional users, Photographic chemical.

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Harmful if swallowed
May cause burns of eyes, skin and mucous membranes
May cause central nervous system depression
May cause adverse liver and kidney effects

Physical state liquid

Odor Odorless

Color clear

HMIS

Health Hazard - 3

Flammability - 1

**Physical - 0
Hazard**

Potential Health Effects

Eyes

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

Skin

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

Inhalation

May cause irritation of respiratory tract.

Ingestion

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.

Chronic Effects

Chronic toxicity

Avoid repeated exposure. Possible risks of irreversible effects.

Aggravated Medical Conditions

Central nervous system. Preexisting eye disorders. Skin disorders. Allergies. Kidney disorders. Liver disorders.

Environmental hazard Very toxic to aquatic organisms. See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous

Chemical Name	CAS-No	Weight %
Potassium sulfite	10117-38-1	15-25
Hydroquinone	123-31-9	5-10
Potassium carbonate	584-08-7	1-5
Diethylene glycol	111-46-6	1-5
Sodium borate	1330-43-4	0.1-1
Potassium hydroxide	1310-58-3	<0.1

Non-Hazardous

Chemical Name	CAS-No	Weight %
Water	7732-18-5	>60

4. FIRST AID MEASURES

General advice	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. Keep eye wide open while rinsing. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. 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	Immediate medical attention is required. Do NOT induce vomiting. Clean mouth with water. Drink plenty of water. Never give anything by mouth to an unconscious person.
Notes to physician	May cause sensitization of susceptible persons. Treat symptomatically.
Protection of First-aiders	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

5. FIRE-FIGHTING MEASURES

Flash point:	Does not flash
Suitable Extinguishing Media	Water spray. Carbon dioxide (CO ₂). Alcohol-resistant foam. Dry chemical.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.
Hazardous Combustion Products	Carbon oxides, Sulfur oxides.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

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	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. For personal protection see section 8.
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.
Other information	Refer to protective measures listed in Sections 7 and 8.

7. HANDLING AND STORAGE

Advice on safe handling	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists. Ensure adequate ventilation. Wear personal protective equipment. Wash thoroughly after handling.
Technical measures/Storage conditions	Keep container tightly closed in a dry 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
Hydroquinone 123-31-9	TWA: 1 mg/m ³		TWA: 2 mg/m ³	
Diethylene glycol 111-46-6		TWA: 10 mg/m ³		
Sodium borate 1330-43-4	STEL 6 mg/m ³ TWA: 2 mg/m ³			
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m ³			

Occupational Exposure Controls

Engineering Measures	Apply technical measures to comply with the occupational exposure limits.
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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. Face-shield.
Skin and body protection	Wear suitable protective clothing.

Hand Protection Impervious gloves.

Other Protective Equipment Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state liquid

ph 11.8

Flash point: Does not flash

Boiling point/boiling range > 100 °C

Odor Odorless

Color clear

Autoignition temperature: No information available

Vapor Pressure 24 mbar @ 20 °C

Vapor density 0.6

Density No information available

Water Solubility completely soluble

Melting point/range: No information available

Specific Gravity No information available

Bulk Density: No information available

10. STABILITY AND REACTIVITY

Stability Stable under normal conditions.

Incompatible products Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition.

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors. Sulfur oxides. Carbon oxides.

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions Contact with strong acids liberates sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

Acute toxicity - Product Information

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

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

Inhalation May cause irritation of respiratory tract.

Ingestion 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.

Acute toxicity - Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	90,000 mg/kg (Rat)		
Hydroquinone	320 mg/kg (Rat)	> 4800 mg/kg (Rat)	
Potassium carbonate	1870 mg/kg (Rat)	>2000 mg/kg (Rabbit)	
Diethylene glycol	12565 mg/kg (Rat)	11890 mg/kg (Rabbit)	
Sodium borate	2403 mg/kg (Rat)	2000 mg/kg (Rabbit)	
Potassium hydroxide	214 mg/kg (Rat)		

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.
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.
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

Subchronic toxicity No information available

Chronic toxicity Avoid repeated exposure. Possible risks of irreversible effects.

Carcinogenicity Contains a known or suspected carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydroquinone	A3			

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

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.

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.

Reproductive toxicity Contains ingredients that are suspected reproductive hazards. However, based on available data the product should not be classified for reproductive effects.

Target Organ Effects Skin, Eyes, Respiratory system, Central nervous system, Kidney, Liver.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects Very toxic to aquatic organisms.

Component Information

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Potassium sulfite		LC50 220 - 460 mg/L <i>Leuciscus idus</i> 96 h	
Hydroquinone	13.5 mg/L EC50 120 h (<i>Desmodesmus subspicatus</i>) 0.335 mg/L EC50 72 h (<i>Pseudokirchneriella subcapitata</i>)	LC50 0.1 - 0.18 mg/L <i>Pimephales promelas</i> 96 h LC50= 0.044 mg/L <i>Pimephales promelas</i> 96 h LC50= 0.17 mg/L <i>Brachydanio rerio</i> 96 h LC50= 0.044 mg/L <i>Oncorhynchus mykiss</i> 96 h	EC50 = 0.29 mg/L 48 h (<i>Daphnia magna</i>)
Diethylene glycol		LC50= 75200 mg/L <i>Pimephales promelas</i> 96 h	EC50 = 84000 mg/L 48 h (<i>Daphnia magna</i>)
Sodium borate	158 mg/L EC50 96 h (<i>Desmodesmus subspicatus</i>) 2.6 - 21.8 mg/L EC50 96 h (<i>Pseudokirchneriella subcapitata</i>)	LC50= 340 mg/L <i>Limanda limanda</i> 96 h	LC50 1085 - 1402 mg/L 48 h (<i>Daphnia magna</i>)
Potassium hydroxide		LC50= 80 mg/L <i>Gambusia affinis</i> 96 h	

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

Bioaccumulation: - No information available

Mobility - No information available

Chemical Name	log Pow
Hydroquinone	0.5
Diethylene glycol	-1.98
Potassium hydroxide	0.65 0.83

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Should not be released into the environment.

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

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

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

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDL	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/NDL - 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

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
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		
Diethylene glycol - 111-46-6		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	
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
Potassium hydroxide	X	X	X		X

International Regulations

Mexico - Grade Serious risk, Grade 3

Chemical Name	Carcinogen Status	Exposure Limits
Hydroquinone	A3	Mexico: TWA 2 mg/m ³
Sodium borate		Mexico: TWA 1 mg/m ³

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.

DANGER!

- Contains:

Hazardous Components

Chemical Name	CAS-No	Weight %
Potassium sulfite	10117-38-1	15-25
Hydroquinone	123-31-9	5-10
Potassium carbonate	584-08-7	1-5
Diethylene glycol	111-46-6	1-5
Sodium borate	1330-43-4	0.1-1
Potassium hydroxide	1310-58-3	<0.1

Harmful if swallowed. May cause burns of eyes, skin and mucous membranes. May cause central nervous system depression. May cause adverse liver and kidney effects.

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