

Material Safety Data Sheet

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1. Identification of the substance/mixture and of the company/undertaking

Product name: KODAK X-OMAT EX II Developer, Working solution

Product code: 10075768, Working solution

Supplier: Carestream Health, Inc., 150 Verona Street, Rochester, New York 14608; Carestream Health Canada Company, 6 Monogram Place, Suite 200, Toronto, Ontario, M9R 0A1

MSDS Prepared by: Health, Safety and Environment, Carestream Health, Inc., Rochester, New York, 14608.

For Emergency Health Information call: 1-800-424-9300.

For Other Information, call the Marketing and Distribution Center in Your Area.

Synonyms: None.

Product Use: photographic processing chemical, For industrial use only.

2. Hazards identification

CONTAINS: Potassium sulphite (10117-38-1), Diethylene glycol (111-46-6), Hydroquinone (123-31-9), Glutaraldehyde bis(sodium bisulphite) (7420-89-5), 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7)

WARNING!

HARMFUL IF SWALLOWED

CAN CAUSE KIDNEY DAMAGE AND CNS EFFECTS FOLLOWING INGESTION

CAUSES EYE IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

HMIS III Hazard Ratings: Health - 2*, Flammability - 0, Physical Hazard -

NFPA Hazard Ratings: Health - 2, Flammability - 0, Instability - 0

NOTE: HMIS III and NFPA hazard indexes involve data review and interpretation that may vary among companies. They are intended only for rapid, general identification of the magnitude of the potential hazards. An asterisk (*), in the HMIS III health field, designates potential chronic or target organ hazards. To adequately address safe handling, ALL information in this MSDS must be considered.

3. Composition/information on ingredients

Weight percent	Components (CAS-No.)
5 - 10	Potassium sulphite (10117-38-1)
1 - 5	Hydroquinone (123-31-9)
1 - 5	Diethylene glycol (111-46-6)

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1 - 5	Glutaraldehyde bis(sodium bisulphite) (7420-89-5)
0.1 - < 1	4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7)

4. First aid measures

Inhalation: If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.

Ingestion: If swallowed, only induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately.

5. Fire-fighting measures

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

Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective suit. Fire or excessive heat may produce hazardous decomposition products.

Hazardous Combustion Products: None (noncombustible), (see also Hazardous Decomposition Products section).

Unusual Fire and Explosion Hazards: None.

6. Accidental release measures

Methods for cleaning up: Absorb spill with inert material, then place in a chemical waste container. Clean surface thoroughly to remove residual contamination.

7. Handling and storage

Personal precautions: Avoid breathing mist or vapour at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion: No special technical protective measures required.

Storage: Keep container tightly closed. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls/personal protection

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Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Hydroquinone	ACGIH	time weighted average	1 mg/m ³
	OSHA Z1	Permissible exposure limit	2 mg/m ³
Sulphur dioxide	ACGIH	time weighted average	2 ppm
	ACGIH	Short term exposure limit	5 ppm
	OSHA Z1	Permissible exposure limit	5 ppm 13 mg/m ³

Ventilation: Good general ventilation should be used. Ventilation should be sufficient so that applicable occupational exposure limits are not exceeded. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: full-face organic vapour/N95. If respirators are used, a program should be instituted to assure compliance with applicable federal, state, commonwealth, provincial, or local laws and regulations.

Eye protection: Wear safety glasses with side shields (or goggles).

Skin and body protection: Wear impervious gloves and protective clothing appropriate for the risk of exposure.

Recommended Decontamination Facilities: Safety shower, eye wash, washing facilities as appropriate to condition of use.

9. Physical and Chemical Properties

Physical form: liquid

Colour: light yellow

Odour: odourless

Specific gravity: 1.08

Vapour pressure (at 20.0 °C (68.0 °F)) : 24 mbar (18.0 mm Hg)

Vapour density: 0.6

Volatile fraction by weight: < 95 %

Boiling point/boiling range: > 100.0 °C (> 212.0 °F)

Water solubility: complete

pH: 10.5

Flash point: none, noncombustible liquid

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10. Stability and reactivity

Stability: Stable under normal conditions.

Incompatibility: Acids. Contact with strong acids liberates sulphur dioxide.

Hazardous decomposition products: Carbon oxides, Sulphur oxides.

Hazardous Polymerization: Hazardous polymerisation does not occur.

11. Toxicological information

Effects of Exposure

General advice:

Contains: Diethylene glycol. Can cause kidney damage and CNS effects following ingestion. Repeated oral exposure to high doses can cause liver damage.

Contains: Hydroquinone. There is insufficient evidence for classifying hydroquinone as a suspected carcinogenic or mutagenic substance in humans. No increases in cancer rates were observed in an epidemiology study which looked at mortality among more than 800 persons employed primarily in the manufacture of hydroquinone. Carcinogenicity studies in animals were inconclusive. Rats and mice were given hydroquinone by stomach tube or at high concentrations in the diet. Responses were not consistent across route of exposure, species or sex. The International Agency for Research on Cancer (IARC) has classified hydroquinone in Group 3, i.e., "not classifiable" as a carcinogen. Hydroquinone is generally negative in bacterial mutagenicity tests; there is evidence for the clastogenicity (chromosome breakage) of hydroquinone in vivo and in vitro. The relevance of chromosomal effects in test animals in predicting human risk is unclear.

Contains: 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone. May cause adverse reproductive effects such as infertility based on animal data. Based on repeated-dose ingestion studies in animals, this chemical may cause blood, testicular, and adverse reproductive effects.

Inhalation: Expected to be a low hazard for recommended handling. Some asthmatics or hypersensitive individuals may experience difficulty breathing if exposed to aerosols or decomposition products that are not anticipated during normal use.

Eyes: Causes eye irritation. Airborne dust/mist/vapor irritating.

Skin: May cause allergic skin reaction based on human experience. May cause skin depigmentation. Prolonged or repeated skin contact may cause irritation.

Ingestion: Harmful if swallowed. Can cause kidney damage and CNS effects following ingestion. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea. May cause irritation of the gastrointestinal tract if swallowed.

Data for Hydroquinone (CAS 123-31-9):

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Acute Toxicity Data:

Oral LD50 (male rat): 400 mg/kg

- Dermal LD50 (guinea pig): > 1,000 mg/kg
- Skin irritation: slight
- Skin Sensitization (guinea pig): positive
- Eye irritation: moderate

Mutagenicity/Genotoxicity Data:

- Salmonella typhimurium assay (Ames test): negative (in presence and absence of activation)
- Chromosomal aberration assay: negative (in absence of activation)
- Chromosomal aberration assay: positive (in presence of activation)
- Mouse micronucleus assay: positive
- Sister chromatid exchange (SCE) assay: positive (in presence and absence of activation)
- Chromosomal aberration assay: negative (in absence of activation)
- Mouse lymphoma assay: positive (in presence and absence of activation)

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Dermal (17-day, rat): NOEL; 3800 mg/kg/day
- Dermal (17-day): Lowest observable effect level; 4800 mg/kg/day

Developmental Toxicity Data:

- Oral (female rabbit): NOEL for developmental toxicity; 25mg/kg/day
- Oral (females rabbit): NOEL for maternal toxicity; 25mg/kg/day
- Oral (female rat): NOAEL for developmental toxicity; 300mg/kg/day

Data for Glutaraldehyde bis(sodium bisulphite) (CAS 7420-89-5):

Acute Toxicity Data:

Oral LD50 (male and female rat): > 3,200 mg/kg

- Oral LD50 (male mouse): 1,600 - 3,200 mg/kg
- Dermal LD50 (guinea pig): > 1,000 mg/kg
- Skin irritation: moderate to strong
- Skin Sensitization (guinea pig): negative
- Eye irritation: slight to moderate

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Feeding study (14-day, male rat): NOEL; 944 mg/kg/day (highest dose tested, target organ effects: none)

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- Oral (14-day, male rat): NOEL; 147 mg/kg/day (irritation of gastrointestinal tract)
- Oral (14-day, male rat): Lowest observable effect level; 1639 mg/kg/day (irritation of gastrointestinal tract)

Data for 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (CAS 13047-13-7):

Acute Toxicity Data:

Oral LD50 (rat): 566 mg/kg

- Oral (mouse): 283 mg/kg
- Dermal LD50: > 1,000 mg/kg
- Dermal (rat): > 2,000 mg/kg
- Skin irritation: slight
- Skin irritation: slight exacerbation (repeated skin application)
- Skin Sensitization: slight
- Eye irritation: strong irritation

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Oral (12-day, rat): NOEL; 88 mg/kg/day
- Oral (12-day, rat): Lowest observable effect level; 440 mg/kg/day (target organ effects: blood, target organ effects: testes)
- Oral (28-day, rat): NOEL; 10 mg/kg/day
- Oral (28-day, rat): Lowest observable effect level; 40 mg/kg/day (target organ effects: blood, target organ effects: testes)

12. Ecological information

The following properties are ESTIMATED from the components of the preparations.

Potential Toxicity:

Toxicity to fish (LC50):	< 10 mg/l
Toxicity to daphnia (EC50):	< 100 mg/l
Toxicity to algae (IC50):	< 10 mg/l
Toxicity to other organisms (EC50):	> 100 mg/l

Persistence and degradability: Readily biodegradable.

Chemical Oxygen Demand (COD): 131 g/l

Biochemical Oxygen Demand (BOD): 57 g/l

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13. Disposal considerations

Discharge, treatment, or disposal may be subject to federal, state, commonwealth, provincial, or local laws. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

Not regulated for all modes of transportation.

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

15. Regulatory information

Notification status

Regulatory List	Notification status
EINECS	y (positive listing)
TSCA	y (positive listing)
AICS	n (Negative listing)
DSL	y (positive listing)
ENCS (JP)	n (Negative listing)
KECI (KR)	n (Negative listing)
PICCS (PH)	y (positive listing)
INV (CN)	y (positive listing)

A N (Negative listing) indicates one or more component is either not on the public Inventory or is subject to exemption requirements. If additional information is needed contact Carestream Health.

WHMIS (Canada): D2A, D2B

WHMIS Symbol(s):



Other regulations

American Conference of Governmental Industrial Hygienists (ACGIH):

International Agency for Research on Cancer (IARC):

Hydroquinone: Group A3 (Confirmed animal carcinogen with unknown relevance to humans.)

No component of this product present at

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	levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
U.S. National Toxicology Program (NTP):	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
U.S. Occupational Safety and Health Administration (OSHA):	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
California Prop. 65:	none
US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323):	Water, Potassium sulphite, Diethylene glycol
US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000):	No components are subject to the Massachusetts Right to Know Act.
US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5):	Water, Potassium sulphite, Diethylene glycol, Hydroquinone, Glutaraldehyde bis(sodium bisulphite)
US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:	Hydroquinone
US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

16. Other information

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.

US/Canadian Label Statements:

CONTAINS: Potassium sulphite (10117-38-1), Diethylene glycol (111-46-6), Hydroquinone (123-31-9), Glutaraldehyde bis(sodium bisulphite) (7420-89-5), 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7)

WARNING!

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CAN CAUSE KIDNEY DAMAGE AND CNS EFFECTS FOLLOWING INGESTION

CAUSES EYE IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

Avoid prolonged or repeated breathing of mist or vapour.

Avoid contact with eyes, skin, and clothing.

Use only with adequate ventilation.

Wash thoroughly after handling.

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FIRST AID: If inhaled, remove to fresh air. Get medical attention if symptoms occur. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes. If swallowed, only induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately.

Keep out of reach of children.

Do not handle or use until safety precautions in Material Safety Data Sheet (MSDS) have been read and understood.

Since emptied containers retain product residue, follow label warnings even after container is emptied.

IN CASE OF FIRE: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

IN CASE OF SPILL: Absorb spill with inert material, then place in a chemical waste container. Clean surface thoroughly to remove residual contamination.

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment. The information relating to the working solution is for guidance purposes only, and is based on correct mixing and use of the product according to instructions.
