

## Material Safety Data Sheet

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### 1. Identification of the substance/preparation and of the company/undertaking

Product name: KODAK RP X-OMAT Developer Replenisher, Working solution

Product code: 1249259 - Working solution

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

For Emergency Health Information call, (800) 424-9300

For other information contact 800-328-2910.

Synonyms: None.

Product Use: photographic processing chemical (developer/activator)  
For industrial use only.

### 2. Hazards identification

**CONTAINS:** Potassium sulphite (10117-38-1), Hydroquinone (123-31-9), Glutaraldehyde bis(potassium bisulfite) (68310-08-7), Sodium sulphite (7757-83-7), 1-phenyl-3-pyrazolidinone (92-43-3), Glutaraldehyde (111-30-8)

**WARNING!**  
**MAY BE HARMFUL IF SWALLOWED.**  
**CAUSES EYE IRRITATION**  
**MAY CAUSE ALLERGIC SKIN REACTION**

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

**NOTE:** NFPA 704 (2007) hazard indexes involves data review and interpretation that may vary among companies. It is intended only for rapid, general identification of the magnitude of the potential hazards. To adequately address safe handling, ALL information in this MSDS must be considered.

### 3. Composition/information on ingredients

Weight %	Components (CAS-No.)
80 - 90	Water (7732-18-5)
5 - 10	Potassium sulphite (10117-38-1)
1 - 5	Hydroquinone (123-31-9)
1 - 5	Glutaraldehyde bis(potassium bisulfite) (68310-08-7)
0.1 - 1	Glutaraldehyde (111-30-8)
0.1 - 1	Sodium sulphite (7757-83-7)
0.1 - 1	1-phenyl-3-pyrazolidinone (92-43-3)

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### 4. First aid measures

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

**Eyes:** Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

**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 center 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 clothing. 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 vermiculite or other inert material, then place in a container for chemical waste. 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

#### Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
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Hydroquinone	ACGIH OSHA Z1	time weighted average Permissible exposure limit	2 mg/m3 2 mg/m3
Sulphur dioxide	ACGIH ACGIH OSHA Z1	time weighted average Short term exposure limit Permissible exposure limit	2 ppm 5 ppm 5 ppm 13 mg/m3
1-phenyl-3-pyrazolidinone	EK HPG	Time Weighted Average (TWA):	0.2 mg/m3

**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:** None should be needed. 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 (Aqueous solution)

**Colour:** yellow

**Odour:** slight

**Specific gravity:** 1.082

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

**Vapour density:** 0.6

**Volatile fraction by weight:** 80 - 90 %

**Water solubility:** complete

**pH:** 10.3

**Flash point:** does not flash

### 10. Stability and reactivity

**Stability:** Stable under normal conditions.

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**Incompatibility:** Acids. Contact with strong acids may liberate sulphur dioxide.

**Hazardous decomposition products:** sulphur oxides.

**Hazardous Polymerization:** Hazardous polymerization does not occur.

## 11. Toxicological information

### Effects of Exposure

#### General advice:

**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: Glutaraldehyde bis(potassium bisulfite).** The toxicological properties of this material have not been investigated and its handling and use may be hazardous. Health hazard evaluation based on a structurally similar material.

**Contains: 1-phenyl-3-pyrazolidinone.** 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 contact may cause drying, cracking, or irritation.

**Ingestion:** May be harmful if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

### Data for Potassium sulphite (CAS 10117-38-1):

#### Acute Toxicity Data:

- Oral LD50: > 3,200 mg/kg
- Dermal LD50: > 20,000 mg/kg

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- Skin irritation: slight to moderate

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

#### Acute Toxicity Data:

- Oral LD50 (rat): 400 mg/kg
- Oral LD50 (male rat): 400 mg/kg
- Oral LD50 (male mouse): 100 - 200 mg/kg
- Dermal LD50 (guinea pig): > 1,000 mg/kg
- Dermal absorption rate: 1.1 micrograms (s) / cm<sup>2</sup> / hour
- 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)
- Sister chromatid exchange (SCE) 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): LOEL (Lowest observable effect level); 4800 mg/kg/day

#### Developmental Toxicity Data:

- Oral (female rabbit): NOEL for developmental toxicity; 25mg/kg/day

### Data for Sodium sulphite (CAS 7757-83-7):

#### Acute Toxicity Data:

- Oral LD50 (rat): > 1,600 mg/kg
- Skin irritation: none
- Eye irritation: slight; washing palliative

### Data for 1-phenyl-3-pyrazolidinone (CAS 92-43-3):

#### Acute Toxicity Data:

- Oral LD50 (male rat): 476 mg/kg
- Oral LD50 (female rat): 336 mg/kg
- Dermal LD50 (guinea pig): > 1,000 mg/kg
- Skin irritation: slight
- Skin irritation: slight (repeated skin application)
- Skin Sensitization (guinea pig): negative

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- Eye irritation (unwashed eyes): slight

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 (90 days, rat): LOEL (Lowest observable effect level); 0.32 % in diet (target organ effects: testes)
- Oral (90 days, rat): LOEL (Lowest observable effect level); 0.08 % in diet (reduced feed intake)
- Oral (90 days, rat): LOEL (Lowest observable effect level); 0.02 % in diet (target organ effects: red blood cell)
- Oral (90 days, rat): NOEL; (Not established)

## 12. Ecological information

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

### Potential Toxicity:

Toxicity to fish (LC50):	1 - 10 mg/l
Toxicity to daphnia (EC50):	1 - 10 mg/l
Toxicity to algae (IC50):	10 - 100 mg/l
Toxicity to other organisms (EC50):	> 100 mg/l

Persistence and degradability: Readily biodegradable

Chemical Oxygen Demand (COD): ca. 83 g/l

Biochemical Oxygen Demand (BOD): ca. 41 g/l

## 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

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### Notification status

Regulatory List	Notification status	Other information	Not listed
EINECS	n (Negative listing)	-	Lignosulfonic acid, sodium salt
TSCA	y (positive listing)	On TSCA Inventory	
AICS	n (Negative listing)	-	Glutaraldehyde bis(potassium bisulfite)
DSL	y (positive listing)	All components of this product are on the Canadian DSL list.	
ENCS (JP)	n (Negative listing)	-	Glutaraldehyde bis(potassium bisulfite)
KECI (KR)	n (Negative listing)	-	Glutaraldehyde bis(potassium bisulfite)
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 Kodak.

### Other regulations

American Conference of Governmental Industrial Hygienists (ACGIH):	Hydroquinone: Group A3 (Confirmed animal carcinogen with unknown relevance to humans.)
International Agency for Research on Cancer (IARC):	No component of this product present at 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.
U.S. California Prop. 65:	none
US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323):	Water, Potassium sulphite
US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000):	No components are subject to 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, Hydroquinone, Potassium acetate, Glutaraldehyde bis(potassium

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	bisulfite)
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 CFR355, 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), Hydroquinone (123-31-9), Glutaraldehyde bis(potassium bisulfite) (68310-08-7), Sodium sulphite (7757-83-7), 1-phenyl-3-pyrazolidinone (92-43-3), Glutaraldehyde (111-30-8)

**WARNING!**  
**MAY BE HARMFUL IF SWALLOWED.**  
**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.

**FIRST AID:** If inhaled, move to fresh air. Get medical attention if symptoms occur. Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur. 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 center 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.



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

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**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.**

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**R-1, S-2, F-0, C-0**