

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 1/9

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

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

**Product code:** 1318989, Working solution

**Supplier:** 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 (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: 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.)                                 |
|----------------|--|
| 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)                            |

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 2/9

---

0.1 - 1            Sodium sulphite (7757-83-7)  
0.1 - 1            1-phenyl-3-pyrazolidinone (92-43-3)

## 4. First aid measures

**Inhalation:** If inhaled, remove 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 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 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

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 3/9

---

## Occupational exposure controls

| Chemical Name             | Regulatory List | Value Type                   | Value                      |
|---------------------------|-----------------|------------------------------|----------------------------|
| Hydroquinone              | ACGIH           | time weighted average        | 1 mg/m <sup>3</sup>        |
|                           | OSHA Z1         | Permissible exposure limit   | 2 mg/m <sup>3</sup>        |
| 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 <sup>3</sup> |
| 1-phenyl-3-pyrazolidinone | EK HPG          | Time Weighted Average (TWA): | 0.2 mg/m <sup>3</sup>      |

**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

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 4/9

---

## 10. Stability and reactivity

**Stability:** Stable under normal conditions.

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

**Hazardous decomposition products:** Sulphur oxides.

**Hazardous Polymerization:** Hazardous polymerisation 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:

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 5/9

---

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

- Dermal LD50 (guinea pig): > 20,000 mg/kg
- Skin irritation: slight to moderate

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

### 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 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

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 6/9

---

- Dermal LD50 (guinea pig): > 1,000 mg/kg
- Skin irritation: slight
- Skin irritation: slight (repeated skin application)
- Skin Sensitization (guinea pig): negative
- 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): Lowest observable effect level; 0.32 % in diet (target organ effects: testes)
- Oral (90 days, rat): Lowest observable effect level; 0.08 % in diet (reduced feed intake)
- Oral (90 days, rat): Lowest observable effect level; 0.02 % in diet (target organ effects: red blood cell)
- Feeding study (90 days, male and female rat): NOEL; (Not established, target organ effects: red blood cell, target organ effects: testes)
- Feeding study (90 days, male and female rat): Lowest observable effect level; (Not established, target organ effects: red blood cell, target organ effects: testes)

## 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

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 7/9

---

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          | n (Negative 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): | 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   |

# Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 8/9

---

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|---|---|
| California Prop. 65:  | levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.                                     |
| US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323):  | This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects. |
| US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000):                                       | Water, Potassium sulphite   |
| US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5):   | No components are subject to the Massachusetts Right to Know Act.   |
| 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: | Water, Potassium sulphite, Hydroquinone, Potassium acetate, Glutaraldehyde bis(potassium bisulfite)                                     |
| US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):           | Hydroquinone  |
|   | 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, remove 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.



## Material Safety Data Sheet

Revision Date: 13.04.2010  
000000012818/Version: 1.2  
Print Date: 06.11.2010  
Page: 9/9

---

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 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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