

## Material Safety Data Sheet



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

**Product name:** KODAK GBX Developer and Replenisher

**Product code:** 4037180

**Supplier:** EASTMAN KODAK COMPANY, 343 State Street, Rochester, New York 14650

For Emergency Health, Safety & Environmental Information, call (585) 722-5151 (USA)

For further information about this product, call (800) 242-2424.

**Synonyms:** PCD 4852

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

### 2. Hazards identification

**CONTAINS:** Potassium sulphite (10117-38-1), Diethylene glycol (111-46-6), Sodium sulphite (7757-83-7), Hydroquinone (123-31-9), 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7)

**WARNING!**

**CAUSES EYE IRRITATION**

**HARMFUL IF SWALLOWED**

**CAN CAUSE KIDNEY DAMAGE AND CNS EFFECTS FOLLOWING INGESTION**

**HMIS III Hazard Ratings:** Health - 2\*, Flammability - 1, Physical Hazard - 0

**NFPA Hazard Ratings:** Health - 3, Flammability - 1, Instability - 0

NOTE: HMIS III and NFPA 704 (2007) 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. 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)
5 - 10	Diethylene glycol (111-46-6)
5 - 10	Sodium sulphite (7757-83-7)

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5 - 10	Hydroquinone (123-31-9)
1 - 5	Potassium carbonate (584-08-7)
1 - 5	Sodium bromide (7647-15-6)
0.1 - < 1	4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7)
0.1 - < 1	Potassium hydroxide (1310-58-3)

### 4. First aid measures

**Inhalation:** If symptomatic, move 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. If easy to do, remove contact lens, if worn. Get medical attention.

**Skin:** Wash off with soap and water. Get medical attention if symptoms occur.

**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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

**Hazardous Combustion Products:** Carbon oxides, sulphur oxides, (see also Hazardous Decomposition Products sections.)

**Unusual Fire and Explosion Hazards:** None.

### 6. Accidental release measures

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:** Keep from contact with oxidizing materials.

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**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
Hydroquinone	ACGIH	time weighted average	1 mg/m <sup>3</sup>
Hydroquinone	OSHA	time weighted average	2 mg/m <sup>3</sup>
Sulphur dioxide	ACGIH	Short term exposure limit	0.25 ppm
	OSHA	time weighted average	5 ppm 13 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. A respirator must be worn if hazardous decomposition products are likely to be or have been released. Respirator type: full-face organic vapour/N95. See Stability and Reactivity Section. 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).

**Hand protection:** Wear impervious gloves and protective clothing appropriate for the risk of exposure.

### 9. Physical and chemical properties

**Physical form:** liquid

**Colour:** clear

**Odour:** odourless

**Specific gravity:** 1.24

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

**Vapour density:** 0.6

**Boiling point/boiling range:** > 35 °C (> 95.0 °F) (estimated)

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**Water solubility:** complete

**pH:** 10.3

**Flash point:** > 93.33 °C (> 200.0 °F) (estimated)

### 10. Stability and reactivity

**Stability:** Stable under normal conditions.

**Incompatibility:** Strong oxidizing agents, Acids. Contact with strong acids liberates sulphur dioxide.

**Hazardous decomposition products:** 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: Sodium bromide. Ingestion of bromide salts can cause nausea, vomiting, headache, irritability, delirium, memory loss, decreased appetite, joint pain, hallucinations, stupor, coma, and acne like rash on face, legs, and trunk.

**Inhalation:** Expected to be a low hazard for recommended handling. In contact with strong acids or if heated, sulphites may liberate sulphur dioxide gas. Sulphur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

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**Eyes:** Causes eye irritation.

**Skin:** May cause skin depigmentation. Prolonged or repeated contact may cause drying, cracking, or 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.

### 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): Lowest observable effect level; 4800 mg/kg/day

#### Developmental Toxicity Data:

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

### Data for PCD 6400 (a very similar material):

#### Acute Toxicity Data:

Oral LD50 (rat): > 2,000 mg/kg

- Skin irritation: none

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- Skin Sensitization: negative

### 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 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. 400 g/l

**Biochemical Oxygen Demand (BOD):** ca. 146 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

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.

<b>IATA:</b>	UN number:	UN3082
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydroquinone)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
	Marine Pollutant(s):	hydroquinone
<b>IMDG:</b>	UN number:	UN3082

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Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,  
LIQUID, N.O.S. (hydroquinone)  
Class: 9  
Packaging group: III  
Marine Pollutant status: Marine pollutant  
Marine Pollutant(s): hydroquinone

**US DOT:** UN number: UN3082

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,  
LIQUID, N.O.S. (hydroquinone)  
Class: 9  
Packaging group: III  
Marine Pollutant status: Marine pollutant  
Marine Pollutant(s): hydroquinone

For more transportation information, go to: [www.kodak.com/go/ship](http://www.kodak.com/go/ship).

### 15. Regulatory information

#### Notification status

Regulatory List	Notification status
TSCA	Not all listed
DSL	Not all listed
NDSL	None listed
EINECS	Not all listed
ELINCS	None listed
NLP	None listed
AICS	All listed
IECS	All listed
ENCS	Not all listed
ECI	Not all listed
NZIoC	All listed
PICCS	All listed

"Not all listed" 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.

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### Other regulations

American Conference of Governmental Industrial Hygienists (ACGIH):	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans: Hydroquinone
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.
California Prop. 65	WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
U.S. - CERCLA/SARA (40 CFR § 302.4 Designation of hazardous substances):	Hydroquinone
U.S. - CERCLA/SARA - Section 302 (40 CFR § 355 Appendices A and B - The List of Extremely Hazardous Substances and Their Threshold Planning Quantities):	Hydroquinone
U.S. - CERCLA/SARA - Section 313 (40 CFR § 372.65 Toxic Chemical Release Reporting):	Hydroquinone
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Hydroquinone
U.S. - California - 8 CCR Section 5200-5220 - Specifically Regulated Carcinogens:	No components found on the California Specifically Regulated Carcinogens List.
U.S. - California - 8 CCR Section 5203 Carcinogens:	No components found on the California Section 5203 Carcinogens List.
U.S. - California - 8 CCR Section 5209 Carcinogens:	No components found on the California Section 5209 Carcinogens List.



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U.S. - Massachusetts - General Law Chapter 111F (MGL c 111F) - Hazardous Substances Disclosure by Employers (a.k.a. Right to Know Law):	Hydroquinone
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Diethylene glycol , Hydroquinone
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Hydroquinone
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):	Water , Potassium sulphite , Diethylene glycol , Sodium sulphite , Hydroquinone , Potassium hydroxide

### 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:

##### KODAK GBX Developer and Replenisher

**CONTAINS:** Potassium sulphite (10117-38-1) , Diethylene glycol (111-46-6) , Sodium sulphite (7757-83-7) , Hydroquinone (123-31-9) , 4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (13047-13-7).

**WARNING! CAUSES EYE IRRITATION. HARMFUL IF SWALLOWED. CAN CAUSE KIDNEY DAMAGE AND CNS EFFECTS FOLLOWING INGESTION.**

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. **FIRST AID:** If symptomatic, move 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. If easy to do, remove contact lens, if worn. Get medical attention. Wash off with soap and water. Get medical attention if symptoms occur. 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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide. **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. **Additional Components Include:** Water (7732-18-5) , Potassium carbonate (584-08-7) , Sodium bromide (7647-15-6) , Potassium hydroxide (1310-58-3).

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

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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-1, C-0