

# Material Safety Data Sheet

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

**Product name:** KODAK DEKTOL Developer (Single Powder)

**Product code:** 1464726

**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 224

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

## 2. Hazards identification

**CONTAINS:** Sodium carbonate, monohydrate (5968-11-6), Sodium sulphite (7757-83-7), Hydroquinone (123-31-9), Bis(4-hydroxy-N-methylanilinium) sulphate (55-55-0), Polyphosphoric acids, sodium salts (68915-31-1), Potassium bromide (7758-02-3)

### WARNING!

**MAY LIBERATE SULFUR DIOXIDE  
HARMFUL IF INHALED OR SWALLOWED  
CAUSES SKIN AND EYE IRRITATION  
DUST IRRITATING TO THE EYES AND RESPIRATORY TRACT  
MAY CAUSE ALLERGIC SKIN REACTION  
REPEATED EXPOSURE TO DUST MAY CAUSE EYE INJURY  
MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA  
MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA  
MAY CAUSE CYANOSIS BASED ON ANIMAL DATA**

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

**NFPA Hazard Ratings:** Health - 3, Flammability - 0, 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.)
50 - 55	Sodium carbonate, monohydrate (5968-11-6)
30 - 35	Sodium sulphite (7757-83-7)
5 - 10	Hydroquinone (123-31-9)

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- 1 - 5 Bis(4-hydroxy-N-methylanilinium) sulphate (55-55-0)
- 1 - 5 Polyphosphoric acids, sodium salts (68915-31-1)
- 1 - 5 Potassium bromide (7758-02-3)

### 4. First aid measures

**Inhalation:** If inhaled, remove to fresh air. Get medical attention.

**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:** In case of contact, immediately flush eyes or 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, DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately.

#### Notes to physician:

**Treatment:** Absorption of this material into the body leads to the formation of methemoglobin that, in sufficient concentration, causes cyanosis. Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures such as bed rest and oxygen inhalation. Thorough cleansing of the entire contaminated area of the body, including scalp and nails, is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, one milligram per kilogram of body weight, may be of value.

### 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 sections.)

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

### 6. Accidental release measures

Shovel into suitable container for disposal. Avoid dust formation. Clean surface thoroughly to remove residual contamination.

### 7. Handling and storage

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**Personal precautions:** Do not breathe dust at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. 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
Hydroquinone	ACGIH	time weighted average	1 mg/m <sup>3</sup>
	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:** Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Controls should be sufficient so that applicable occupational exposure limits are not exceeded.

**Respiratory protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: N95 Particulate Filter. A respirator should be worn if hazardous decomposition products are likely to be or have been released. Respirator type: acid gas 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:** solid (powder)

**Colour:** white

**Odour:** odourless

**Specific gravity:** no data available

**Vapour pressure (at 20.0 °C (68.0 °F)) :** negligible

**Vapour density:** not applicable

**Boiling point/boiling range:** not applicable

**Melting point/range:** no data available

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**Water solubility:** appreciable

**pH:** not applicable

**Flash point:** not applicable

## 10. Stability and reactivity

**Stability:** Stable under normal conditions.

**Incompatibility:** 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: 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: Bis(4-hydroxy-N-methylanilinium) sulphate. Based on animal data, may cause adverse effects on the following organs/systems: blood, kidney, spleen. Based on animal data this material can produce methemoglobin which, in sufficient concentration, causes cyanosis, a blue-gray discoloration of the skin and lips caused by a reduced ability of the blood to carry oxygen.

Contains: Polyphosphoric acids, sodium salts. May cause kidney damage based on animal data.

Contains: Potassium 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:** Harmful if inhaled. Airborne dust irritating. May cause irritation to the mucous membranes and upper respiratory tract. In contact with strong acids or if heated, sulphites may

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liberate sulphur dioxide gas. Sulphur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

**Eyes:** Causes eye irritation. Airborne dust irritating. Repeated exposure to dust may cause eye injury.

**Skin:** Causes skin irritation. May cause allergic skin reaction based on human experience. May cause skin depigmentation.

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

### Acute Toxicity Data:

Oral LD50 (rat): 500 - 5,000 mg/kg

- Skin irritation: moderate

## 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): Daphnia: 1 - 10 mg/l

**Persistence and degradability:** Not readily biodegradable.

## 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:	UN3077
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (hydroquinone, Bis(4-hydroxy-N-methylanilinium) sulphate)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
	Marine Pollutant(s):	hydroquinone, Bis(4-hydroxy-N-methylanilinium) sulphate

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<b>IMDG:</b>	UN number:	UN3077
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (hydroquinone, Bis(4-hydroxy-N- methylanilinium) sulphate)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
	Marine Pollutant(s):	hydroquinone, Bis(4-hydroxy-N-methylanilinium) sulphate
<b>US DOT:</b>	UN number:	UN3077
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (hydroquinone, Bis(4-hydroxy-N- methylanilinium) sulphate)
	Class:	9
	Packaging group:	III
	Marine Pollutant status:	Marine pollutant
	Marine Pollutant(s):	hydroquinone, Bis(4-hydroxy-N-methylanilinium) sulphate

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	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.

#### Other regulations

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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.
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):	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	Sodium carbonate, monohydrate,

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Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):

Sodium sulphite, Hydroquinone

### 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 DEKTOL Developer (Single Powder)

**CONTAINS:** Sodium carbonate, monohydrate (5968-11-6), Sodium sulphite (7757-83-7), Hydroquinone (123-31-9), Bis(4-hydroxy-N-methylanilinium) sulphate (55-55-0), Polyphosphoric acids, sodium salts (68915-31-1), Potassium bromide (7758-02-3).

**WARNING! MAY LIBERATE SULFUR DIOXIDE. HARMFUL IF INHALED OR SWALLOWED. CAUSES SKIN AND EYE IRRITATION. DUST IRRITATING TO THE EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. REPEATED EXPOSURE TO DUST MAY CAUSE EYE INJURY. MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA. MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA. MAY CAUSE CYANOSIS BASED ON ANIMAL DATA.**

Do not breathe dust at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Use only with adequate ventilation. Wash thoroughly after handling. **FIRST AID:** If inhaled, remove to fresh air. Get medical attention. 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. In case of contact, immediately flush eyes or 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, DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control centre immediately. **Note to Physicians:** Absorption of this material into the body leads to the formation of methemoglobin that, in sufficient concentration, causes cyanosis. Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures such as bed rest and oxygen inhalation. Thorough cleansing of the entire contaminated area of the body, including scalp and nails, is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, one milligram per kilogram of body weight, may be of value. 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:** Shovel into suitable container for disposal. Avoid dust formation. 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.

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