

# Material Safety Data Sheet

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

**Product name:** KODAK D-19 Developer

**Product code:** 1464593

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

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

For other information or to request an MSDS, call (800) 242-2424.

**Synonyms:** PCD 242

**Product Use:** photographic processing chemical, For consumer and industrial use.

## 2. Hazards identification

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

### WARNING!

**MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA**

**MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA**

**MAY CAUSE CYANOSIS BASED ON ANIMAL DATA**

**HARMFUL IF INHALED OR SWALLOWED**

**MAY LIBERATE SULFUR DIOXIDE**

**DUST, MIST OR VAPOUR IRRITATING TO THE EYES AND RESPIRATORY TRACT**

**REPEATED EXPOSURE TO DUST MAY CAUSE EYE INJURY**

**CAUSES SKIN AND 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.)
55 - 60	Sodium sulphite (7757-83-7)
30 - 35	Sodium carbonate, monohydrate (5968-11-6)
1 - 5	Hydroquinone (123-31-9)
1 - 5	Potassium bromide (7758-02-3)
1 - 5	Bis(4-hydroxy-N-methylanilinium) sulphate (55-55-0)

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1 - 5 Polyphosphoric acids, sodium salts (68915-31-1)

## 4. First aid measures

**Inhalation:** If inhaled, 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. 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 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:** Shovel into suitable container for disposal. Avoid dust formation. Clean surface thoroughly to remove residual contamination.

## 7. Handling and storage

**Personal precautions:** Do not breathe dust. 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
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Hydroquinone	ACGIH	time weighted average	2 mg/m3
	OSHA Z1	Permissible exposure limit	2 mg/m3
Sulphur dioxide	ACGIH	time weighted average	2 ppm
	ACGIH	Short term exposure limit	5 ppm
	OSHA Z1	Permissible exposure limit	5 ppm 13 mg/m3

**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: full-face cartridge respirator with acid gas cartridge and N95 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).

**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:** solid (powder or granules)

**Colour:** white

**Odour:** odourless

**Specific gravity:** 1.13

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

**Vapour density:** not applicable

**Volatile fraction by weight:** negligible

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

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

**Water solubility:** appreciable

**pH:** 10

**Flash point:** not applicable

**Flammability Limits:** Not specified

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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 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: 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.

**Inhalation:** Harmful if inhaled. Airborne dust/mist/vapor irritating. 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.

**Eyes:** Causes eye irritation. Airborne dust/mist/vapor 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 burns of the gastrointestinal tract if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

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### 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 Sodium carbonate, monohydrate (CAS 5968-11-6):

#### Acute Toxicity Data:

- Oral LD50: 1,600 - 3,200 mg/kg
- Skin irritation: slight

### 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: 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 Potassium bromide (CAS 7758-02-3):

#### Acute Toxicity Data:

- Oral LD50 (rat): > 1,600 mg/kg

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### 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):** 180 g/l

**Biochemical Oxygen Demand (BOD):** 130 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: [www.kodak.com/go/ship](http://www.kodak.com/go/ship).

### 15. Regulatory information

#### Notification status

Regulatory List	Notification status	Other information	Not listed
EINECS	n (Negative listing)	-	Sodium carbonate, monohydrate
TSCA	n (Negative listing)	Not On TSCA Inventory	Sodium carbonate, monohydrate
AICS	y (positive listing)	-	
DSL	n (Negative listing)	This product contains the following components that are not on the Canadian DSL nor NDSL lists.	Sodium carbonate, monohydrate
ENCS (JP)	n (Negative listing)	-	Sodium carbonate, monohydrate
KECI (KR)	n (Negative listing)	-	Sodium carbonate, monohydrate

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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. 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.
US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323):	Sodium sulphite, Sodium carbonate, monohydrate, Hydroquinone, Potassium bromide
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):	Sodium sulphite, Sodium carbonate, monohydrate, Hydroquinone, Potassium bromide, Bis(4-hydroxy-N-methylanilinium) sulphate, Polyphosphoric acids, sodium salts

## 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:

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**WARNING!**

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HARMFUL IF INHALED OR SWALLOWED  
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DUST, MIST OR VAPOUR IRRITATING TO THE EYES AND RESPIRATORY TRACT  
REPEATED EXPOSURE TO DUST MAY CAUSE EYE INJURY  
CAUSES SKIN AND EYE IRRITATION  
MAY CAUSE ALLERGIC SKIN REACTION**

Do not breathe dust.  
Avoid contact with eyes, skin, and clothing.  
Keep container tightly closed.  
Use only with adequate ventilation.  
Wash thoroughly after handling.

**FIRST AID:** If inhaled, 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. 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 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.

**IN CASE OF SPILL:** Shovel into suitable container for disposal. Avoid dust formation. 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-2, S-2, F-0, C-0