

# MATERIAL SAFETY DATA SHEET

Revision Date: 06/15/2004  
Z17000000706/Version: 1.2  
Print Date: 06/06/2005  
Page: 1/6



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

**Product name:** KODAK FLEXICOLOR Developer, Part A

**Product code:** 1927698 - Part A

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

**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 4802

## 2. Hazards identification

**CONTAINS:** Potassium sulphite (10117-38-1), Sodium sulphite (7757-83-7)

**WARNING!**  
**MAY BE HARMFUL IF SWALLOWED.**  
**MAY LIBERATE SULFUR DIOXIDE**

**HMIS Hazard Ratings:**

Health - 1, Flammability - 0, Reactivity (Stability) - 0

**NFPA Hazard Ratings:**

Health - 1, Flammability - 0, Instability - 0

NOTE: HMIS 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 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 %	Components (CAS-No.)
55 - 60	Water (7732-18-5)
25 - 30	Potassium carbonate (584-08-7)
5 - 10	Potassium bicarbonate (298-14-6)
1 - 5	Pentetic acid, pentasodium salt (140-01-2)
1 - 5	Potassium sulphite (10117-38-1)
1 - 5	Sodium sulphite (7757-83-7)
1 - 5	Sodium bromide (7647-15-6)

# MATERIAL SAFETY DATA SHEET

Revision Date: 06/15/2004  
Z17000000706/Version: 1.2  
Print Date: 06/06/2005  
Page: 2/6

## 4. First aid measures

**Inhalation:** If symptomatic, move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

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

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

**Ingestion:** Drink 1-2 glasses of water. Seek medical attention. Never give anything by mouth to an unconscious person.

## 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:** Flush into sewer with plenty of water. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

## 7. Handling and storage

**Personal precautions:** Avoid breathing mist or vapour. Avoid contact with eyes and prolonged or repeated contact with skin. Use 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
Sulphur dioxide	ACGIH	Time Weighted Average (TWA):	2 ppm
	ACGIH	Short Term Exposure Limit (STEL):	5 ppm
	OSHA Z1	PEL:	5 ppm
			13 mg/m3

# MATERIAL SAFETY DATA SHEET

Revision Date: 06/15/2004  
Z17000000706/Version: 1.2  
Print Date: 06/06/2005  
Page: 3/6

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**Ventilation:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions.

**Respiratory protection:** None should be needed. 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 OSHA Standard 29 CFR 1910.134.

**Eye protection:** It is a good industrial hygiene practice to minimize eye contact. Wear safety glasses with side shields (or goggles).

**Skin and body protection:** It is a good industrial hygiene practice to minimize skin contact. For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

**Recommended Decontamination Facilities:** Safety shower, eye wash, washing facilities as appropriate to condition of use.

## 9. Physical and Chemical Properties

**Physical form:** liquid

**Colour:** colourless

**Odour:** odourless

**Specific gravity:** 1.408

**Vapour pressure:** 23.4 mbar (17.6 mm Hg)

**Relative vapour density:** 0.6

**Volatile fraction by weight:** 55 - 60 %

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

**Water solubility:** complete

**pH:** 10.9

**Flash point:** none, noncombustible liquid

## 10. Stability and reactivity

**Stability:** Stable.

**Incompatibility:** Acids. Contact with strong acids liberates sulphur dioxide.

**Hazardous decomposition products:** Carbon oxides, sulphur oxides.

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

# MATERIAL SAFETY DATA SHEET

Revision Date: 06/15/2004  
Z17000000706/Version: 1.2  
Print Date: 06/06/2005  
Page: 4/6

## 11. Toxicological information

### Effects of Exposure

**Inhalation:** Expected to be a low hazard for usual industrial or commercial handling by trained personnel. 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:** No specific hazard known. May cause transient irritation.

**Skin:** This material has a low potential to cause allergic skin reactions; however, cases of human skin sensitization have been reported.

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

## 12. Ecological information

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

Potential Toxicity:

Fish LC50: > 100 mg/l

Daphnid EC50: > 100 mg/l

Algal IC50: > 100 mg/l

Waste treatment organisms EC50: > 100 mg/l

Organics Readily Degradable: Not readily biodegradable.

Potential Bioaccumulation:  $\log P_{ow} < 1$

COD (approximate): 25 g/l

BOD (approximate): 10 g/l

## 13. Disposal considerations

Discharge, treatment, or disposal is subject to national, state, provincial, or municipal laws. Consult state or local regulatory authorities before flushing to sewer with large amounts of water. Since emptied containers retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

Not regulated for all modes of transportation.

# MATERIAL SAFETY DATA SHEET

Revision Date: 06/15/2004  
Z17000000706/Version: 1.2  
Print Date: 06/06/2005  
Page: 5/6

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For transportation information regarding this product call the Kodak Worldwide Transportation Hazmat Hot Line: (585) 722-2400 between 8 a.m. and 5 p.m. (Eastern Standard Time), Monday through Friday. In Canada: General Shipping Information, call: (416) 766-8233.

## 15. Regulatory information

**U.S. California Prop. 65:** none

**Carcinogenicity Classification (components present at 0.1% or more):**

International Agency for Research on Cancer (IARC): Sodium sulphite: 3 (not classifiable as to carcinogenicity to humans), Sulphur dioxide: 3 (not classifiable as to carcinogenicity to humans), Potassium sulphite: 3 (not classifiable as to carcinogenicity to humans)  
American Conference of Governmental Industrial Hygienists (ACGIH): none  
U.S. National Toxicology Program (NTP): none  
U.S. Occupational Safety and Health Administration (OSHA): none

**Chemical(s) subject to the reporting requirements of U.S. Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372:** none

## 16. Other information

**US/Canadian Label Statements:**

**CONTAINS:** Potassium sulphite (10117-38-1), Sodium sulphite (7757-83-7)

**WARNING!**  
**MAY BE HARMFUL IF SWALLOWED.**  
**MAY LIBERATE SULFUR DIOXIDE**

Avoid breathing mist or vapour.  
Avoid contact with eyes and prolonged or repeated contact with skin.  
Use with adequate ventilation.  
Wash thoroughly after handling.

**FIRST AID:** If swallowed, seek medical advice. Never give anything by mouth to an unconscious person.

Keep out of reach of children.

For additional information, see Material Safety Data Sheet (MSDS) for this material.

Additional hazard precautions for containers greater than 1 gallon of liquid or 5 pounds of solid:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

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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

## MATERIAL SAFETY DATA SHEET

Revision Date: 06/15/2004  
Z17000000706/Version: 1.2  
Print Date: 06/06/2005  
Page: 6/6

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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-1, F-0, C-0

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003  
Version: 1.1  
Print Date: 06/06/2005  
Page: 1/7



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

**Product name:** KODAK FLEXICOLOR Developer, Part B

**Product code:** 1927698

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

**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 3500

## 2. Hazards identification

**CONTAINS:** Hydroxylamine sulfate (10039-54-0)

**DANGER!**

**HEAT SENSITIVE - CAN DECOMPOSE IF HEATED**

**CONTENTS MAY DEVELOP PRESSURE UPON PROLONGED EXPOSURE TO HEAT**

**CAN CAUSE BLOOD DISORDERS**

**HARMFUL IF ABSORBED THROUGH SKIN OR SWALLOWED**

**CAUSES SKIN AND EYE IRRITATION**

**MAY CAUSE ALLERGIC SKIN REACTION**

**DRIED PRODUCT RESIDUE CAN ACT AS A REDUCING AGENT.**

**REACTS WITH METALS.**

**CAN CAUSE CYANOSIS**

**HMIS Hazard Ratings:**

Health - 2\*, Flammability - 0, Reactivity (Stability) - 2

**NFPA Hazard Ratings:**

Health - 2, Flammability - 0, Reactivity (Stability) - 2

NOTE: HMIS 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 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 %	Components (CAS-No.)
70 - 75	Water (7732-18-5)
25 - 30	Hydroxylamine sulfate (10039-54-0)

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003

Print Date: 06/06/2005

Page: 2/7

## 4. First aid measures

**Inhalation:** If symptomatic, move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

**Eyes:** Immediately flush 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 reuse. Destroy or thoroughly clean contaminated shoes.

**Ingestion:** 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. Water mist may be used to cool closed containers.

**Hazardous Combustion Products:** None (noncombustible) (see also Hazardous Decomposition Products section).

**Unusual Fire and Explosion Hazards:** Mixture contains a strong reducing agent. Reacts violently with oxidizing materials. Dried product residue can act as a reducing agent. May cause spontaneous heating and ignition when absorbed on combustible, porous material (e.g. rags, paper, sawdust, cotton, clothing). Elevated temperature can cause decomposition.

## 6. Accidental release measures

**Methods for cleaning up:** Collect in a noncombustible container for prompt disposal.

**For Large Spills:** Flush with plenty of water. Do not store in metal containers.

## 7. Handling and storage

**Personal precautions:** Avoid prolonged or repeated breathing of mist or vapour. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Use with adequate ventilation.

**Prevention of Fire and Explosion:** Keep away from heat and flame. Keep from any contact with metals. Remove and wash contaminated clothing promptly. Exercise caution if heating, especially in a closed container. Keep from contact with oxidizing materials, highly oxygenated or halogenated solvents, organic compounds containing reducible functional groups.

**Storage:** Store in original container. Do not store in metal containers. Contents may develop pressure upon prolonged exposure to heat. Store in cool place. Keep container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section.)

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003

Print Date: 06/06/2005

Page: 3/7

## 8. Exposure controls / personal protection

**Occupational exposure controls:** Not established

**Ventilation:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances such as poorly ventilated spaces, evaporation from large surfaces, spraying, heating, etc.

**Respiratory protection:** If engineering controls do not maintain airborne concentrations to an acceptable level, an approved respirator must be worn. Respirator type: organic vapour. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

**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.

## 9. Physical and Chemical Properties

**Physical form:** liquid

**Colour:** colourless

**Odour:** odourless

**Specific gravity:** 1.17

**Vapour pressure:** 24 mbar (18.0 mm Hg)

**Relative vapour density:** 0.6

**Volatile fraction by weight:** 70 - 75 %

**Boiling point/range:** decomposes before boiling

**Water solubility:** complete

**pH:** 3.1

**Flash point:** none, noncombustible liquid

## 10. Stability and reactivity

**Stability:** Stable in glass and plastic containers, however, becomes unstable in contact with metals. Materials containing similar structural groups can decompose if heated above 110°C (230°F). Safe handling temperatures are dependent on specific conditions of use and are typically substantially below the onset temperature. Consult your technical safety experts.

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003

Print Date: 06/06/2005

Page: 4/7

**Incompatibility:** Acids, halogenated compounds, metals, strong oxidizing agents. Material not stable in contact with metals.

**Hazardous decomposition products:** ammonia, sulphur dioxide, nitrogen oxides (NOx).

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

## 11. Toxicological information

### Effects of Exposure

#### General advice :

Contains: Hydroxylamine sulfate. Can cause blood disorders. Can cause cyanosis. There is limited evidence of carcinogenicity in lifetime oral studies in rats.

**Inhalation:** Expected to be a low hazard for recommended handling.

**Eyes:** Causes irritation.

**Skin:** Harmful if absorbed through skin. Causes irritation. May cause allergic skin reaction based on human experience.

**Ingestion:** Harmful if swallowed.

### Data for Hydroxylamine sulfate:

#### Acute Toxicity Data:

- Oral LD50 (rat): 100 - 200 mg/kg
- Dermal LD50: > 1,000 mg/kg
- Dermal study (24 hours): 10 mg/kg (target organ effects: red blood cell)
- Skin irritation: moderate
- Skin Sensitization: strong
- Eye irritation: slight

## 12. Ecological information

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

#### Potential Toxicity:

Fish LC50: 10 - 100 mg/l

Daphnid EC50: 1 - 10 mg/l

Algal IC50: > 100 mg/l

Waste treatment organisms EC50: 10 - 100 mg/l

Organics Readily Degradable: Not applicable

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003

Print Date: 06/06/2005

Page: 5/7

Potential Bioaccumulation: log Pow < 1

COD (approximate): 135 g/l

BOD (approximate): 10 g/l

## 13. Disposal considerations

Discharge, treatment, or disposal is subject to national, state, provincial, or municipal laws. Consult state or local regulatory authorities before flushing to sewer with large amounts of water. 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.

**US DOT:** UN Number: UN3264  
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (Hydroxylamine Sulfate)  
Class: 8  
Packaging group: III

**IMDG:** UN Number: UN3264  
Proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Hydroxylamine Sulfate)  
Class: 8  
Packaging group: III

**IATA:** UN Number: UN3264  
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (Hydroxylamine Sulfate)  
Class: 8  
Packaging group: III

For transportation information regarding this product call the Kodak Worldwide Transportation Hazmat Hot Line: (585) 722-2400 between 8 a.m. and 5 p.m. (Eastern Standard Time), Monday through Friday. In Canada: General Shipping Information, call: (416) 766-8233.

## 15. Regulatory information

**U.S. California Prop. 65:** none

**Carcinogenicity Classification (components present at 0.1% or more):**

International Agency for Research on Cancer (IARC): none

American Conference of Governmental Industrial Hygienists (ACGIH): none

U.S. National Toxicology Program (NTP): none

U.S. Occupational Safety and Health Administration (OSHA): none

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003

Print Date: 06/06/2005

Page: 6/7

Chemical(s) subject to the reporting requirements of U.S. Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372: none

## 16. Other information

### US/Canadian Label Statements:

**CONTAINS: Hydroxylamine sulfate (10039-54-0)**

**DANGER!**

**HEAT SENSITIVE - CAN DECOMPOSE IF HEATED**

**CONTENTS MAY DEVELOP PRESSURE UPON PROLONGED EXPOSURE TO HEAT**

**CAN CAUSE BLOOD DISORDERS**

**HARMFUL IF ABSORBED THROUGH SKIN OR SWALLOWED**

**CAUSES SKIN AND EYE IRRITATION**

**MAY CAUSE ALLERGIC SKIN REACTION**

**DRIED PRODUCT RESIDUE CAN ACT AS A REDUCING AGENT.**

**REACTS WITH METALS.**

**CAN CAUSE CYANOSIS**

Avoid prolonged or repeated breathing of mist or vapour.

Keep container tightly closed to prevent the loss of water.

Store in a cool place.

Keep away from heat and flame.

Exercise caution if heating, especially in a closed container.

Avoid all contact with metal.

Store in original tightly closed container.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Use with adequate ventilation.

Keep from contact with clothing and other materials. Remove and wash contaminated clothing promptly.

**FIRST AID:** If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. In case of contact, immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Destroy or thoroughly clean contaminated shoes. Wash contaminated clothing before reuse.

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.

Additional hazard precautions for containers greater than 1 gallon of liquid or 5 pounds of solid:

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. Water mist may be used to cool closed containers.

## MATERIAL SAFETY DATA SHEET

Revision Date: 09/10/2003

Print Date: 06/06/2005

Page: 7/7

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**IN CASE OF SPILL:** Flush with plenty of water.

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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-3, F-0, C-2HT

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 1/7



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

**Product name:** KODAK FLEXICOLOR Developer, Part C

**Product code:** 1927698 - Part C

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

**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 3565

## 2. Hazards identification

**CONTAINS:** 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (25646-77-9), Sodium bisulphite (7631-90-5)

### WARNING!

**HEAT SENSITIVE - CAN DECOMPOSE IF HEATED**

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

**HARMFUL IF SWALLOWED**

**MAY BE HARMFUL IF INHALED**

**MAY LIBERATE SULFUR DIOXIDE**

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

**CAUSES SKIN AND EYE IRRITATION**

**MAY CAUSE ALLERGIC SKIN REACTION**

**THE PHYSICAL-CHEMICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED**

### HMIS II Hazard Ratings:

Health - 3\*, Flammability - 1, Reactivity (Stability) - 1

### NFPA Hazard Ratings:

Health - 2, Flammability - 1, Instability - 1

NOTE: HMIS II 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 II 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 %	Components (CAS-No.)
70 - 75	Water (7732-18-5)
25 - 30	4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (25646-77-9)

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 2/7

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1 - 5

Sodium bisulphite (7631-90-5)

## 4. First aid measures

**Inhalation:** Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

**Eyes:** Immediately flush with plenty of water for at least 15 minutes. Get medical attention.

**Skin:** Immediately flush 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:** 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:** water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol foam.

**Special Fire-Fighting Procedures:** Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products. Use water spray to cool unopened containers.

**Hazardous Combustion Products:** Carbon oxides, nitrogen oxides (NO<sub>x</sub>), sulfur oxides

**Unusual Fire and Explosion Hazards:** Elevated temperature can cause decomposition.

## 6. Accidental release measures

**Methods for cleaning up:** Flush into sewer with plenty of water.

**For Large Spills:** Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Prevent runoff from entering drains, sewers, or streams.

## 7. Handling and storage

**Personal precautions:** Do not get in eyes, on skin, or on clothing. Avoid breathing mist or vapour. Use with adequate ventilation. Wash thoroughly after handling.

**Prevention of Fire and Explosion:** Keep from contact with oxidizing materials. Keep away from heat and sources of ignition.

**Storage:** Store in cool place. Keep container tightly closed. Keep away from incompatible substances (see Incompatibility section.)

## 8. Exposure controls / personal protection

**Occupational exposure controls**

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 3/7

Chemical Name	Regulatory List	Value Type	Value
Sodium bisulphite	ACGIH	Time Weighted Average (TWA):	5 mg/m3
Sulphur dioxide	ACGIH	Time Weighted Average (TWA):	2 ppm
	ACGIH	Short Term Exposure Limit (STEL):	5 ppm
	OSHA Z1	PEL:	5 ppm 13 mg/m3
4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate	EK HPG	Time Weighted Average (TWA):	0.1 mg/m3

**Ventilation:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances such as poorly ventilated spaces, evaporation from large surfaces, spraying, heating, etc.

**Respiratory protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: Acid gas. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

**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

**Colour:** reddish-brown

**Odour:** sulphur dioxide

**Specific gravity:** 1.10

**Vapour pressure:** 24 mbar (18.0 mm Hg)

**Vapor density (air = 1):** 0.6

**Volatile fraction by weight:** 70 - 75 %

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

**Water solubility:** complete

**pH:** 2.1

**Flash point:** None.

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 4/7

## 10. Stability and reactivity

**Stability:** Not fully evaluated. Materials containing similar structural groups can decompose if heated.

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

**Hazardous decomposition products:** sulphur oxides.

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

## 11. Toxicological information

### Effects of Exposure

#### General advice:

Contains: 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate. May cause kidney damage based on animal data.

**Inhalation:** May be harmful if inhaled. Liberates sulphur dioxide gas which can cause irritation to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

**Eyes:** Causes irritation. Vapor irritating.

**Skin:** Causes irritation. May cause allergic skin reaction.

**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.

### Data for 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate:

#### Acute Toxicity Data:

- Oral LD50 (male rat): 25 - 50 mg/kg (target organ effects: kidney)
- Oral LD50 (female rat): 30 mg/kg (target organ effects: kidney)
- Oral LD50 (mouse): 141 mg/kg (target organ effects: kidney)
- Inhalation LC50 (rat): > 164 mg/m<sup>3</sup> / 6 h
- Dermal LD50: > 2,000 mg/kg
- Dermal absorption rate (rat): 93.7 microgram(s)/cm<sup>2</sup>/hour (in vitro)
- Skin irritation: moderate
- Skin irritation: moderate irritation (repeated skin application)
- Skin Sensitization (human): positive
- Eye irritation (unwashed eyes): moderate
- Eye irritation (washed 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.

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 5/7

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## Repeated dose toxicity:

- Oral (4 weeks, female rat): NOEL; 1 mg/kg/day
- Oral (4 weeks, female rat): LOEL; 10 mg/kg/day (target organ effects: kidney)
- Oral (4 weeks, male rat): NOEL; 10 mg/kg/day
- Oral (4 weeks, male rat): LOEL; > 10 mg/kg/day (target organ effects: kidney)
- Oral (90 days, rat): NOEL; 1 mg/kg/day
- Oral (90 days, rat): LOEL; 5 mg/kg/day (target organ effects: kidney)

## 12. Ecological information

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

### Potential Toxicity:

Fish LC50:	< 1 mg/l
Daphnid EC50:	1 - 10 mg/l
Algal IC50:	10 - 100 mg/l

Waste treatment organisms EC50: > 100 mg/l

Organics Readily Degradable: Not readily biodegradable

Potential Bioaccumulation: log Pow < 1

COD (approximate): 365 g/l

BOD (approximate): 40 g/l

Although this substance is not expected to biodegrade, it is expected to degrade abiotically and not persist in the environment.

## 13. Disposal considerations

Discharge, treatment, or disposal is subject to national, state, provincial, or municipal laws. Consult state or local regulatory authorities before flushing to sewer with large amounts of water. Since emptied containers retain product residue, follow label warnings even after container is emptied. For large amounts: Contract with a licensed chemical disposal agency.

## 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.

IATA:            UN Number:            UN2922

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 6/7

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Proper shipping name: Corrosive liquid, toxic, n.o.s. (4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate)  
Class: 8  
Sub-risks: 6.1  
Packaging group: III

**IMDG:** UN Number: UN2922  
Proper shipping name: CORROSIVE LIQUID, TOXIC, N.O.S. (4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate)  
Class: 8  
Sub-risks: 6.1  
Packaging group: III

**US DOT:** UN Number: UN2922  
Proper shipping name: Corrosive liquids, toxic, n.o.s. (4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate)  
Class: 8  
Sub-risks: 6.1  
Packaging group: III

For transportation information regarding this product call the Kodak Worldwide Transportation Hazmat Hot Line: (585) 722-2400 between 8 a.m. and 5 p.m. (Eastern Standard Time), Monday through Friday. In Canada: General Shipping Information, call: (416) 766-8233.

## 15. Regulatory information

**U.S. California Prop. 65:** none

### **Carcinogenicity Classification (components present at 0.1% or more):**

International Agency for Research on Cancer (IARC): Sodium bisulphite: 3 (Classification not possible from current data.); 3 (not classifiable as to carcinogenicity to humans), Sulphur dioxide: 3 (not classifiable as to carcinogenicity to humans)

American Conference of Governmental Industrial Hygienists (ACGIH): Sodium bisulphite: Group A4 (Not classifiable as a human carcinogen.)

U.S. National Toxicology Program (NTP): none

U.S. Occupational Safety and Health Administration (OSHA): none

**Chemical(s) subject to the reporting requirements of U.S. Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372:** none

## 16. Other information

### **US/Canadian Label Statements:**

**CONTAINS: 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (25646-77-9), Sodium bisulphite (7631-90-5)**

### **WARNING!**

**HEAT SENSITIVE - CAN DECOMPOSE IF HEATED**

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

**HARMFUL IF SWALLOWED**

# MATERIAL SAFETY DATA SHEET

Revision Date: 04/21/2005  
Z17000000725/Version: 1.3  
Print Date: 06/06/2005  
Page: 7/7

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**MAY BE HARMFUL IF INHALED**  
**MAY LIBERATE SULFUR DIOXIDE**  
**DUST, MIST OR VAPOUR IRRITATING TO THE EYES AND RESPIRATORY TRACT**  
**CAUSES SKIN AND EYE IRRITATION**  
**MAY CAUSE ALLERGIC SKIN REACTION**  
**THE PHYSICAL-CHEMICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED**

Avoid breathing mist or vapour.  
Do not get in eyes, on skin, or on clothing.  
Store in a cool place.  
Keep container closed.  
Keep away from heat and sources of ignition.  
Ensure adequate ventilation.  
Wash thoroughly after handling.

**FIRST AID:** If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. If inhaled, move to fresh air. Treat symptomatically. In case of contact, immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.

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.

Additional hazard precautions for containers greater than 1 gallon of liquid or 5 pounds of solid:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

**IN CASE OF FIRE:** In case of fire, use water spray, dry chemical, CO<sub>2</sub>, or "alcohol" foam. Use water spray to cool unopened containers.

**IN CASE OF SPILL:** Absorb spill with inert material, then place in a chemical waste container. Prevent runoff from entering drains, sewers, and streams.

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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-3, F-1, C-1HT

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/23/2003  
Version: 1.2  
Print Date: 06/06/2005  
Page: 1/6



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

**Product name:** KODAK FLEXICOLOR Developer, Working Solution

**Product code:** 1927698

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

**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:** None

## 2. Hazards identification

**CONTAINS:** 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (25646-77-9), Potassium sulphite (10117-38-1), Sodium sulphite (7757-83-7), Hydroxylamine sulfate (10039-54-0)

### WARNING!

**MAY CAUSE ALLERGIC SKIN REACTION  
MAY BE HARMFUL IF SWALLOWED.**

### HMIS Hazard Ratings:

Health - 2, Flammability - 0, Reactivity (Stability) - 0

### NFPA Hazard Ratings:

Health - 1, Flammability - 0, Reactivity (Stability) - 0

NOTE: HMIS 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 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 %	Components (CAS-No.)
95 - 100	Water (7732-18-5)
1 - 5	Potassium carbonate (584-08-7)
< 1	Carbonic acid, monopotassium salt (298-14-6)
< 1	4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (25646-77-9)
< 1	Pentasodium (carboxylatomethyl) iminobis(ethylenenitrilo)tetraacetate (140-01-2)
< 1	Potassium sulphite (10117-38-1)

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/23/2003

Print Date: 06/06/2005

Page: 2/6

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< 1            Sodium sulphite (7757-83-7)  
< 1            Hydroxylamine sulfate (10039-54-0)

## 4. First aid measures

**Inhalation:** If symptomatic, move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

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

**Skin:** Immediately flush with plenty of water and wash with a non-alkaline (acid) type of skin cleaner. Remove contaminated clothing and shoes. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

**Ingestion:** Drink 1-2 glasses of water. Seek medical attention. Never give anything by mouth to an unconscious person.

## 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.

**Hazardous Combustion Products:** None (noncombustible)

**Unusual Fire and Explosion Hazards:** None

## 6. Accidental release measures

**Methods for cleaning up:** Flush into sewer with plenty of water. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

## 7. Handling and storage

**Personal precautions:** Avoid breathing mist or vapour. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling. The routine use of a nonalkaline (acid) type of hand cleaner and regular cleaning of working surfaces, gloves, etc. will help minimize the possibility of a skin reaction.

**Prevention of Fire and Explosion:** No special technical protective measures required.

**Storage:** Keep container tightly closed.

## 8. Exposure controls / personal protection

**Occupational exposure controls:** Not established

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/23/2003

Print Date: 06/06/2005

Page: 3/6

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**Ventilation:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions.

**Respiratory protection:** None should be needed. 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 OSHA Standard 29 CFR 1910.134.

**Eye protection:** It is a good industrial hygiene practice to minimize eye contact. 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.

## 9. Physical and Chemical Properties

**Physical form:** liquid

**Colour:** colourless

**Odour:** odourless

**Specific gravity:** 1.037

**Vapour pressure:** 24 mbar (18.0 mm Hg)

**Relative vapour density:** 0.6

**Volatile fraction by weight:** 95 - 100 %

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

**Water solubility:** complete

**pH:** 10.0

**Flash point:** none, noncombustible liquid

## 10. Stability and reactivity

**Stability:** Stable.

**Incompatibility:** None with common materials and contaminants with which the material may reasonably come into contact.

**Hazardous decomposition products:** None under normal conditions of use.

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

# MATERIAL SAFETY DATA SHEET

Revision Date: 09/23/2003

Print Date: 06/06/2005

Page: 4/6

## 11. Toxicological information

### Effects of Exposure

**Inhalation:** Expected to be a low hazard for usual industrial or commercial handling by trained personnel. 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:** No specific hazard known. May cause transient irritation.

**Skin:** May cause allergic skin reaction.

**Ingestion:** May be 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.

## 12. Ecological information

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

Potential Toxicity:

Fish LC50: 10 - 100 mg/l

Daphnid EC50: > 100 mg/l

Algal IC50: > 100 mg/l

Waste treatment organisms EC50: > 100 mg/l

Organics Readily Degradable: Not readily biodegradable.

Potential Bioaccumulation:  $\log P_{ow} < 1$

COD (approximate): 10 g/l

BOD (approximate): 1 g/l

## 13. Disposal considerations

Discharge, treatment, or disposal is subject to national, state, provincial, or municipal laws. Consult state or local regulatory authorities before flushing to sewer with large amounts of water. Since emptied containers retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

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# MATERIAL SAFETY DATA SHEET

Revision Date: 09/23/2003

Print Date: 06/06/2005

Page: 5/6

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## 15. Regulatory information

**U.S. California Prop. 65:** none

**Carcinogenicity Classification (components present at 0.1% or more):**

International Agency for Research on Cancer (IARC): Sodium sulphite: 3 (Classification not possible from current data.)

American Conference of Governmental Industrial Hygienists (ACGIH): none

U.S. National Toxicology Program (NTP): none

U.S. Occupational Safety and Health Administration (OSHA): none

**Chemical(s) subject to the reporting requirements of U.S. Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372:** none

## 16. Other information

**US/Canadian Label Statements:**

**CONTAINS: 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (25646-77-9), Potassium sulphite (10117-38-1), Sodium sulphite (7757-83-7), Hydroxylamine sulfate (10039-54-0)**

**WARNING!**

**MAY CAUSE ALLERGIC SKIN REACTION  
MAY BE HARMFUL IF SWALLOWED.**

Avoid breathing mist or vapour.

Avoid contact with eyes, skin, and clothing.

Wash thoroughly after handling.

Use with adequate ventilation.

**FIRST AID:** If swallowed, seek medical advice. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes and 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 reuse. Destroy or thoroughly clean contaminated shoes.

Keep out of reach of children.

For additional information, see Material Safety Data Sheet (MSDS) for this material.

Additional hazard precautions for containers greater than 1 gallon of liquid or 5 pounds of solid:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

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## MATERIAL SAFETY DATA SHEET

Revision Date: 09/23/2003

Print Date: 06/06/2005

Page: 6/6

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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