PCH040

MATERIAL SAFETY DATA SHEET
EASTMAN KODAK COMPANY

1950-25

Date of Revision: 06/08/90 Kodak Accession Number: 427857

PRODUCT INFORMATION

Product Name: KODAK EKTAFLO Developer, Type 2
Formula: Aqueous Mixture
Kodak Catalog Number(s): CAT 101 5148 - 1 Gallon
Mixture Number: 4944
Kodak Hazard Rating Codes: R: 1 S: 3 F: 0 C: 0

Manufacturer/Supplier:
Eastman Kodak Company
343 State Street
Rochester, New York 14650
USA
For Emergency Information: (716) 722-5151
For other purposes, call the Marketing and Distribution Center in your area.

COMPONENT INFORMATION

	Weight Percent	CAS Number	Accession Number
Water	70-80	7732-18-5	035290
Sodium sulfite	5-10	7757-83-7	901148
Potassium borate	5-10	1332-77-0	019779
*Hydroquinone**	3	123-31-9	900356
Diethylene glycol	1-5	111-46-6	902041
*Potassium hydroxide	1-5	1310-58-3	901383

*Principal Hazardous Component(s)

**Chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

PHYSICAL DATA

Appearance and Odor: Clear, tan solution; odorless
Boiling Point: GT 100 C (GT 212 F)
Vapor Pressure: ca. 18 mmHg @ 20 C
Evaporation Rate (n-butyl acetate = 1): Not Available
Vapor Density (Air = 1): ca. 0.6
Volatile Fraction by Weight: 75%
Specific Gravity (H20 = 1): 1.210
pH: ca. 11.4
Solubility in Water (by Weight): Complete

1950-25

FIRE AND EXPLOSION HAZARD

FLASH POINT: None, noncombustible
EXTINGUISHING MEDIA: Use appropriate agent for surrounding fire
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and protective clothing.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Fire or excessive heat may cause production of hazardous decomposition products.

REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY: Strong acids
HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may produce oxides of sulfur.
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: Will not occur.

TOXICOLOGICAL PROPERTIES

EXPOSURE LIMITS:
Component: Hydroquinone
ACGIH TLV: 2 mg/m3-TWA (ACGIH 1989-1990)
OSHA PEL: 2 mg/m3-TWA

Component: Potassium hydroxide
ACGIH TLV: 2 mg/m3-Ceiling (ACGIH 1989-1990)
OSHA PEL: 2 mg/m3-Ceiling

EXPOSURE EFFECTS:
Inhalation: Low hazard for recommended handling.

Eyes: Causes burns

Skin: Prolonged or repeated skin contact may cause skin irritation. May cause an allergic skin reaction.

Ingestion: May be harmful if swallowed. May cause gastrointestinal tract irritation or burns.

PROTECTION AND PREVENTIVE MEASURES

VENTILATION: Good general ventilation should be sufficient.

SKIN AND EYE PROTECTION: Safety glasses are recommended. For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn. The routine use of a non-alkaline (acid) type of skin cleanser and regular cleaning of working surfaces, gloves, etc, will help minimize the possibility of allergic skin reaction.

1950-25

STORAGE AND DISPOSAL

SPECIAL STORAGE AND HANDLING PRECAUTIONS: Keep container tightly closed and away from acids.

SPILL, LEAK, AND DISPOSAL PROCEDURES: Small Amounts: Neutralize with sodium bisulfate. Flush to an acid-free sewer with large amounts of water. Large spills and transportation incidents: Absorb spill with inert material and place in a container for chemical waste. Prevent runoff from entering drains, sewers, and streams. Contract with a licensed chemical disposal agency. Flush residual spill and area with water. Discharge, treatment, or disposal may be subject to federal, state, or local law.

FIRST AID

Eyes: Immediately flush eyes with plenty of water and get medical attention if any symptoms are present after washing.

Skin: Flush skin with plenty of water and wash with a non-alkaline (acid) type of skin cleaner. If skin irritation or an allergic skin reaction develops, get medical attention.

Ingestion: If swallowed, do NOT induce vomiting. Immediately give victim a glass of water. Never give anything by mouth to an unconscious person.

ENVIRONMENTAL EFFECTS DATA

This environmental effects summary is written to assist in addressing emergencies created by an accidental spill, which might occur during the shipment of this product, and in general, it is not meant to address discharges to sanitary sewers or publically owned treatment works.

Some laboratory test data and published data are available for the major components of this formulation. Although this product, as such, has not been tested for environmental effects, the data, mentioned above, have been used to provide the following estimates of potential environmental impact, in the event of an accidental spill: (1-12)

This chemical formulation is a strongly alkaline aqueous solution, and this property may cause adverse environmental effects if discharged directly to the environment without treatment. It is expected to have a low biological oxygen demand, and it is expected to cause little oxygen depletion in aquatic systems. It is expected to have a high potential to affect aquatic organisms and a moderate potential to affect secondary waste treatment microorganisms and the germination and growth of some plants. If spilled on the ground, this formulation is expected to have a high potential to affect the germination and early growth of some plants.

1950-25

The organic component of this chemical formulation is readily biodegradable and is not expected to persist in an aquatic environment. The components of this formulation are not likely to bioconcentrate. The direct instantaneous discharge to a receiving body of water of an amount of this chemical formulation which will rapidly produce, by dilution, a final concentration of 0.2 mg/L or less is not expected to cause an adverse environmental effect. After dilution with a large amount of water, followed by secondary waste treatment, the chemicals in this formulation are not expected to have any adverse environmental impact.

TRANSPORTATION

For Transportation information regarding this product, please phone the Eastman Kodak Distribution Center nearest you: Rochester, NY (716) 588-9293; Oak Brook, IL (312) 954-6000; Chamblee, GA (404) 455-0123; Dallas, TX (214) 241-1611; Whittier, CA (213) 693-5222; Honolulu, HI (808) 833-1661.

REFERENCES

1. Unpublished data, Health and Environment Laboratories, Eastman Kodak Company, Rochester, NY.
2. Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Second Edition, Van Nostrand Reinhold Company, New York, N.Y., 1983.
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4. National Association of Photographic Manufacturers, Inc. and Hydroscience, Inc., Environmental Effects of Photoprocessing Chemicals, National Association of Photographic Manufacturers, Harrison, New York, 1974, 2 Vols.
5. Kodak Publication J-41, BOD5 and COD of Photographic Chemicals, Eastman Kodak Co., 1981.
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8. Bringmann, G. and Kuehn, R., "Results of Toxic Action of Water Pollutants on Daphnia magna (Straus) Tested by an Improved Standardized Procedure," Z. Wasser Abwasser Forsch., 15(1), 1-6 (1982) (in German).
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10. Wellens, H., "Comparison of the Sensitivity of Brachydanio rerio and Leuciscus idus in the Study of the Toxicity of Fish of Chemical Compounds and Waste Waters," Z. Wasser Abwasser Forsch., 15(2) 49-52 (1982) (in German).

11. DeGraeve, G.M., et al., "Acute and Embrio-larval Toxicity of Phenolic Compounds to Aquatic Biota," Arch. Environ. Contam. Toxicol., 9, 557-68 (1980).
12. Pomona College, Medicinal Chemistry Project, Chemical Parameter Data Base, Leo, A.J. and Hansch, C., Eds., Seaver Chemistry Laboratory, Claremont, California, June 20, 1987.

PREPARATION INFORMATION

Health and Environment Laboratories
Eastman Kodak Company
Rochester, New York 14652-3615