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Material Safety Data Sheets

MSDS Product Name: KODAK HC-110 Developer

MATERIAL SAFETY DATA SHEET

200000320/F/USA

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KODAK HC-110 Developer

Catalog Number(s): 140 8962 - 28 fluid ounce(s), To Make 3 1/2 gallons
(U.S.)
140 8988 - 16 fluid ounce(s), To Make 2 gallons
(U.S.)

Manufacturer/Supplier: EASTMAN KODAK COMPANY, Rochester, New York 14650

For Emergency Health, Safety & Environmental Information, call (716) 722-5151

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

Synonym(s): Concentrate: KAN 427909; PCD 4987; C-0070.100
Working solution: KAN 471326; C-0070.110

2. COMPOSITION/INFORMATION ON INGREDIENTS

Weight % - Component - (CAS Registry No.)

Concentrate:

50-55 Diethanolamine-sulfur dioxide complex (063149-47-3)
10-20 Water (007732-18-5)
9 Hydroquinone (000123-31-9)
5-10 Diethylene glycol (000111-46-6)
5-10 2-aminoethanol (000141-43-5)
3 Diethanolamine (000111-42-2)
1-5 Pentetic acid (000067-43-6)
1 Ethylene glycol (000107-21-1)

Working solution:

90-95 Water (007732-18-5)
1-5 Diethanolamine-sulfur dioxide complex (063149-47-3)
< 1 Hydroquinone (000123-31-9)
< 1 Diethylene glycol (000111-46-6)
< 1 2-aminoethanol (000141-43-5)

3. HAZARDS IDENTIFICATION

Concentrate:

CONTAINS: Hydroquinone (000123-31-9); 2-aminoethanol (000141-43-5);
diethanolamine (000111-42-2); diethylene glycol (000111-46-6); ethylene
glycol (000107-21-1)

WARNING!

HEAT SENSITIVE - CAN DECOMPOSE IF HEATED
CAN CAUSE KIDNEY DAMAGE
CAN CAUSE CNS EFFECTS
MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA
MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA
HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED
CAUSES SKIN AND EYE IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION

HMIS Hazard Ratings:

Health - 2, Flammability - 1, Reactivity - 1, Personal Protection - B

NFPA Hazard Ratings:

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

Working solution:

CONTAINS: Hydroquinone (000123-31-9)

WARNING!

CAUSES SKIN AND EYE IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION

HMIS Hazard Ratings:

Health - 2, Flammability - 0, Reactivity - 0, Personal Protection - B

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. The personal protection index is only intended for general guidance on personal protection equipment (PPE) that is suitable for the potential hazards of the material. PPE (e.g., respirators) may not be needed if engineering controls (e.g., local ventilation) are adequate. 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.

4. FIRST-AID MEASURES

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

Eyes:

Concentrate: Immediately flush with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

Working solution: 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. Get medical attention. 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:

Concentrate: Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

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

Note to Physicians: Due to rapid absorption of material, evacuation of the stomach is effective only if performed immediately after ingestion. Whenever possible, stomach evacuation should be accomplished by gastric lavage with appropriate airway control to prevent aspiration.

5. FIRE FIGHTING MEASURES

Extinguishing Media:

Concentrate: Water spray, carbon dioxide (CO₂), dry chemical, alcohol foam

Working solution: Use appropriate agent for adjacent fire.

Special Fire-Fighting Procedures:

Concentrate: Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products. Use water spray to keep fire-exposed containers cool.

Working solution: Wear self-contained breathing apparatus and protective clothing.

Hazardous Combustion Products:

Concentrate: Carbon dioxide, carbon monoxide, oxides of nitrogen, oxides of sulfur

Working solution: None (noncombustible)

Unusual Fire and Explosion Hazards:

Concentrate: Elevated temperature can cause decomposition.

Working solution: None

6. ACCIDENTAL RELEASE MEASURES

Flush to sewer with large amounts of water. Otherwise, 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 Precautionary Measures:

Concentrate: Avoid prolonged or repeated breathing of mist or vapor. 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.

Working solution: Avoid prolonged or repeated breathing of mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion:

Concentrate: Keep from contact with oxidizing materials. Keep away from heat.

Working solution: No special precautionary measures should be needed under anticipated conditions of use.

Storage:

Concentrate: Keep container closed. Store in a cool place.

Working solution: Keep container closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

ACGIH Threshold Limit Value (TLV):

2-aminoethanol: 3 ppm TWA; 6 ppm STEL
Hydroquinone: 2 mg/m³ TWA
Diethanolamine: 0.46 ppm TWA, skin
Ethylene glycol: 39.4 ppm Ceiling, aerosol

OSHA (USA) Permissible Exposure Limit (PEL - 1971 Table Z-1 Values):

2-aminoethanol: 3 ppm TWA
Hydroquinone: 2 mg/m³ TWA

Ventilation:

Concentrate: 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.

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

Respiratory Protection:

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

Working solution: None should be needed.

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

Skin Protection: Wear impervious gloves and protective clothing appropriate for the risk of exposure.

Recommended Decontamination Facilities: Eye bath, washing facilities, safety shower

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid

Color:

Concentrate: Brown

Working solution: Colorless

Odor:

Concentrate: Amine

Working solution: Slight amine .
Specific Gravity (water = 1):
Concentrate: 1.24
Working solution: 1.02
Vapor Pressure at 20°C (68°F):
Concentrate: 14.7 mbar (11 mm Hg)
Working solution: 24 mbar (18 mm Hg)
Vapor Density (Air = 1):
Concentrate: 2.1
Working solution: 0.6
Volatile Fraction by Weight:
Concentrate: 65-70%
Working solution: 90-95%
Boiling Point: >100°C (>212°F)
Solubility in Water: Complete
pH:
Concentrate: 9.0
Working solution: 8.8-9.0
Flash Point:
Concentrate: None
Working solution: None, noncombustible liquid

10. STABILITY AND REACTIVITY

Stability:

Concentrate: Stable; however, material can decompose above 145°C (293°F).
Avoid temperatures above 45°C (113°F).

Working solution: Stable

Incompatibility:

Concentrate: Strong oxidizing agents

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

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Effects of Exposure:

General:

Concentrate:

Contains Hydroquinone: In F-344 rats, chronic oral administration of hydroquinone has resulted in the formation of benign kidney tumors thought to be secondary to nephropathy. Hydroquinone-induced nephropathy following oral administration has been noted in the male F-344 rat, but not in other species or rat strains tested. Although an increase in mononuclear cell leukemia in F-344 female rats has been reported following chronic oral administration of hydroquinone, this finding was not reproduced in a subsequent study. There was no evidence of carcinogenicity in male mice following chronic oral administration of hydroquinone; some evidence of carcinogenic activity was shown in female mice by an increase in hepatocellular neoplasms which were primarily benign adenomas, although this finding was not reproduced in a subsequent study. No skin tumors were reported in mice following long-term dermal application of hydroquinone. Therefore, neoplastic responses have not been consistent across route of exposure, species, or sex. 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 the chromosomal effects in test animals in predicting human risk is unclear.

Contains Diethylene glycol: Can cause kidney damage. Can cause CNS effects.

Contains Diethanolamine: Based on animal data, may cause adverse effects on the following organs/systems: Kidney, liver, blood, nervous system, testes.

Inhalation:

Concentrate: Harmful if inhaled. May cause irritation to the mucous membranes and upper respiratory tract.

Working solution: Expected to be a low hazard for recommended handling.

Eyes: Causes irritation.

Skin:

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

Working solution: May cause allergic skin reaction based on human experience.

Ingestion:

Concentrate: Harmful if swallowed. May cause irritation of the gastrointestinal tract.

Working solution: Expected to be a low ingestion hazard.

Acute Toxicity Data:

Data for Concentrate

Oral LD-50 (rat): > 3200 mg/kg

12. ECOLOGICAL INFORMATION

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

Summary: Data for the major components of this material have been used to estimate the environmental impact of this material. This material is a moderately alkaline aqueous solution, and this property may cause adverse environmental effects. However, this material, itself, has not been tested for environmental effects.

It is expected to have the following properties: a low biochemical oxygen demand and little potential to cause oxygen depletion in aqueous systems, a high potential to affect some aquatic organisms, a high potential to affect secondary waste treatment microbial metabolism, a moderate potential to affect the germination and/or early growth of some plants, a low potential to persist in the environment, a low potential to bioconcentrate. After dilution with a large amount of water, followed by secondary waste treatment, this material is not expected to cause adverse environmental effects.

13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Flush to sewer with large amounts of water.

14. TRANSPORT INFORMATION

For transportation information regarding this product call the Kodak Worldwide Transportation Hazmat Hot Line: (716) 722-2400 between 8 a.m. and 5 p.m. (Eastern Standard Time), Monday through Friday.

15. REGULATORY INFORMATION

- Material(s) known to the State of California to cause cancer: None
- Material(s) known to the State of California to cause adverse reproductive effects: None

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

- International Agency for Research on Cancer (IARC): Hydroquinone, Group 3, not classifiable; Catechol, Group 3, not classifiable
- American Conference of Governmental Industrial Hygienists (ACGIH) (ethylene glycol): Not classifiable as a human carcinogen (A4)
- National Toxicology Program (NTP): None
- Occupational Safety and Health Administration (OSHA): None
- Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372: Hydroquinone, diethanolamine, diethylene glycol, ethylene glycol

16. OTHER INFORMATION

US/Canadian Label Statements:

Concentrate:

CONTAINS: Hydroquinone (000123-31-9); 2-aminoethanol (000141-43-5); diethanolamine (000111-42-2); diethylene glycol (000111-46-6); ethylene glycol (000107-21-1)

WARNING!

HEAT SENSITIVE - CAN DECOMPOSE IF HEATED

CAN CAUSE KIDNEY DAMAGE

CAN CAUSE CNS EFFECTS

MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA

MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA

HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED

CAUSES SKIN AND EYE IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

Avoid prolonged or repeated breathing of mist or vapor.

Store in a cool place.

Avoid contact with eyes, skin, and clothing.

Use with adequate ventilation.

Wash thoroughly after handling.

FIRST AID: 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. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. In case of skin contact, wash skin with soap and plenty of water. Remove 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.

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

Working solution:

CONTAINS: Hydroquinone (000123-31-9)

WARNING!

CAUSES SKIN AND EYE IRRITATION

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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.

R-1, S-2, F-1, C-1HT

WS:R-1, S-2, F-0, C-0



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