

MATERIAL SAFETY DATA SHEET

200000320/F/USA
 Approval Date: 11/15/2003
 Print Date: 10/17/2006
 Page: 1/9



 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 (585) 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);
 Diethanolamine-sulfur dioxide complex (063149-47-3); Pentetic acid
 (000067-43-6)

WARNING!

CAUSES SKIN AND EYE IRRITATION
 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
 MAY CAUSE ALLERGIC SKIN REACTION

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 2/9

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); Diethanolamine-sulfur dioxide complex (063149-47-3)

WARNING!
HARMFUL IF SWALLOWED
CAUSES EYE IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION
MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA
MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA

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: Immediately flush with plenty of water for at least 15 minutes. 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. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion: 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.

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.

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 3/9

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: 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.

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.

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 4/9

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: 2 mg/m³ TWA, skin
Ethylene glycol: 100 mg/m³ STEL, 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: 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):

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 5/9

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. Safe handling temperatures are dependent on specific conditions of use and are typically substantially below the onset temperature. Consult your technical safety experts. Materials containing similar structural groups can decompose if heated above 145°C (293°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: 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.

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 6/9

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.

Contains Diethanolamine-sulfur dioxide complex, Ethanolamine: May cause kidney damage based on animal data. May cause liver damage based on animal data.

Working solution:

Contains Diethanolamine-sulfur dioxide complex: May cause kidney damage based on animal data. May cause liver damage based on animal data.

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:

Concentrate: Causes irritation.

Working solution: Causes irritation.

Skin:

Concentrate: Harmful if absorbed through skin. Causes irritation. May cause allergic skin reaction. May cause skin depigmentation.

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

Ingestion:

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

Working solution: May cause irritation of the gastrointestinal tract.

Acute Toxicity Data:

Data for Concentrate:

Oral LD-50 (rat): > 3200 mg/kg
Dermal LD-50: > 20 ml/kg
Skin irritation: strong irritation
Eye irritation: moderate

12. ECOLOGICAL INFORMATION

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

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 7/9

	Concentrate	Working Solution
Potential Toxicity		
Fish LC50 mg/l:	1-10	10-100
Daphnid EC50 mg/l:	<1	1-10
Algal IC50 mg/l:	10-100	>100
Organics Readily Degradable (>70%):	Yes (7 days)	Yes (7 days)
Potential Bioaccumulation:	Log Pow <1	Log Pow <1
COD (approximate g/l):	1347	84
BOD5 (approximate g/l):	916	57
Potential Toxicity Waste treatment microorganisms EC50 (mg/l):	>100	>100

13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Flush to sewer with large amounts of water. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

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.

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, A4; Not classifiable as a human carcinogen. Hydroquinone, A3; Confirmed animal carcinogen with unknown relevance to humans.
- 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, Ethylene glycol

16. OTHER INFORMATION

MATERIAL SAFETY DATA SHEET

200000320/F/USA
Approval Date: 11/15/2003
Print Date: 10/17/2006
Page: 8/9

US/Canadian Label Statements:

Concentrate:

CONTAINS: Hydroquinone (000123-31-9); 2-aminoethanol (000141-43-5);
Diethanolamine (000111-42-2); Diethylene glycol (000111-46-6);
Diethanolamine-sulfur dioxide complex (063149-47-3); Pentetic acid
(000067-43-6)

WARNING!

CAUSES SKIN AND EYE IRRITATION
CAN CAUSE KIDNEY DAMAGE
CAN CAUSE CNS EFFECTS
HEAT SENSITIVE - CAN DECOMPOSE IF HEATED
MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA
MAY CAUSE BLOOD DISORDERS BASED ON ANIMAL DATA
HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED
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. 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 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); Diethanolamine-sulfur dioxide complex (063149-47-3)

WARNING!

MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA
MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA
CAUSES EYE IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION

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

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

MATERIAL SAFETY DATA SHEET

200000320/F/USA

Approval Date: 11/15/2003

Print Date: 10/17/2006

Page: 9/9

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.

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