

MATERIAL SAFETY DATA SHEET

000003341/F/USA

Approval Date: 02/09/2000

Print Date: 02/22/2000

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KODAK READYMATIC Dental Developer and Replenisher

Catalog Number(s): 102 8869 - 2 X 1 - gallon (U.S.) Ready-To-Use - (Chem Pack)
877 7534 - 4 X 1 gallon (U.S.) Ready-To-Use
856 1599 - 2 X 1 gallon Ready-To-Use - (Chem Pack)
(JAPAN)

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): CIN 10081483; PCD 6135; C-0124.050

2. COMPOSITION/INFORMATION ON INGREDIENTS

Weight % - Component - (CAS Registry No.)

85-90	Water (007732-18-5)
1-5	Sodium sulfite (007757-83-7)
2	Hydroquinone (000123-31-9)
1-5	Sodium bicarbonate (000144-55-8)
< 1	Potassium carbonate (000584-08-7)
< 1	4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (013047-13-7)

3. HAZARDS IDENTIFICATION

CONTAINS: Hydroquinone (000123-31-9), Sodium sulfite (007757-83-7),
4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (013047-13-7)

WARNING!

HARMFUL IF SWALLOWED

CAUSES EYE IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

HMIS Hazard Ratings:

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

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

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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 for at least 15 minutes while removing 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: Only induce vomiting at the instruction of medical personnel. Drink 1-2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use appropriate agent for adjacent fire.

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

Flush to sewer with large amounts of water.

7. HANDLING AND STORAGE

Personal Precautionary Measures: Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

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Prevention of Fire and Explosion: No special precautionary measures should be needed under anticipated conditions of use.

Storage: Keep container closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

ACGIH Threshold Limit Value (TLV):

Hydroquinone: 2 mg/m3 TWA

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

Hydroquinone: 2 mg/m3 TWA

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 Protection: It is a good industrial hygiene practice to minimize skin contact. 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: Colorless

Odor: Odorless

Specific Gravity (water = 1): 1.08

Vapor Pressure at 20 C (68 F): 24 mbar (18 mm Hg)

Vapor Density (Air = 1): 0.6

Volatile Fraction by Weight: 90 %

Boiling Point: >100 C (>212 F)

Solubility in Water: Complete

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pH: 10.1

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 Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Effects of Exposure:

General: 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.

Inhalation: Expected to be a low hazard for usual industrial or commercial handling by trained personnel. In contact with strong acids or if heated, sulfites may liberate sulfur dioxide gas. Sulfur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

Eyes: Causes irritation.

Skin: May cause allergic skin reaction based on human experience. May cause skin depigmentation. Prolonged or repeated contact with aqueous solutions may cause irritation.

Ingestion: Harmful if swallowed.

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12. ECOLOGICAL INFORMATION

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

Potential Toxicity

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

Organics Readily Degradable (>70%):	Yes (7 days)
Potential Bioaccumulation:	Log Pow <1

COD (approximate g/l):	60
BOD5 (approximate g/l):	40

Potential Toxicity

Waste treatment microorganisms EC50 (mg/l):	Not available
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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: (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): None

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- American Conference of Governmental Industrial Hygienists (ACGIH):
Hydroquinone; A3, animal carcinogen.
 - 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
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16. OTHER INFORMATION

US/Canadian Label Statements:

CONTAINS: Hydroquinone (000123-31-9), Sodium sulfite (007757-83-7),
4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone (013047-13-7)

WARNING!

HARMFUL IF SWALLOWED

CAUSES EYE IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

Avoid breathing mist or vapor.

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 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.

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

Keep out of reach of children.

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

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.

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KODAK READYMATIC Dental Fixer and Replenisher

Catalog Number(s): 102 8869 - 2 X 1 gallon (U.S.) Ready-To-Use - (Chem Pack)
871 2879 - 4 X 1 gallon (U.S.) Ready-To-Use
856 1599 - 2 X 1 gallon Ready-To-Use - (Chem Pack)
(JAPAN)

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): KAN 427772; PCD 4856; D-0021.000

2. COMPOSITION/INFORMATION ON INGREDIENTS

Weight % - Component - (CAS Registry No.)

80-85	Water (007732-18-5)
14	Ammonium thiosulfate (007783-18-8)
1-5	Acetic acid (000064-19-7)
< 1	Ammonium sulfite (010196-04-0)
< 1	Aluminum sulfate (010043-01-3)

3. HAZARDS IDENTIFICATION

CONTAINS: Ammonium sulfite (010196-04-0)

WARNING!

MAY BE HARMFUL IF SWALLOWED

HMIS Hazard Ratings:

Health - 1, Flammability - 1, Reactivity - 0, Personal Protection - B

NFPA Hazard Ratings:

Health - 3, Flammability - 1, 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,

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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. 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 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: Water spray, carbon dioxide, 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.

Hazardous Combustion Products: Oxides of sulfur, oxides of nitrogen, (see also Hazardous Decomposition Products section).

Unusual Fire and Explosion Hazards: Solution contains a strong reducing agent. Dried product residue can act as a reducing agent.

6. ACCIDENTAL RELEASE MEASURES

Flush to sewer with large amounts of water.

7. HANDLING AND STORAGE

Personal Precautionary Measures: Avoid breathing mist or vapor. Avoid contact with eyes and prolonged or repeated contact with skin. Use with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion: Keep from contact with oxidizing materials, highly oxygenated or halogenated solvents, organic compounds containing reducible functional groups.

Storage: Keep container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section).

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

ACGIH Threshold Limit Value (TLV):

Acetic acid: 10 ppm TWA; 15 ppm STEL

Aluminum sulfate: 2 mg/m³ TWA, as soluble salts

Sulfur dioxide: 2 ppm TWA; 5 ppm STEL

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

Acetic acid: 10 ppm TWA

Ventilation: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Respiratory Protection: 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 engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: Full-face organic vapor cartridge. 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 Protection: It is a good industrial hygiene practice to minimize skin contact. 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: Light yellow

Odor: Ammonia

Specific Gravity (water = 1): 1.10

Vapor Pressure at 20 C (68 F): 24 mbar (18 mm Hg)

Vapor Density (Air = 1): 0.6

Volatile Fraction by Weight: 85 %

Boiling Point: >100 C (>212 F)

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Solubility in Water: Complete
pH: 4.4
Flash Point: None.

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: Bases, strong acids, sodium hypochlorite (bleach), strong oxidizing agents, combustible material, halogenated materials.

Hazardous Decomposition Products: Ammonia, sulfur dioxide, chloramine.

Hazardous Polymerization: Will not occur.

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, sulfites may liberate sulfur dioxide gas. Sulfur 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. The effects of are considered the most significant in this estimation:

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Potential Toxicity

Fish LC50 mg/l: >100
Daphnid EC50 mg/l: >100
Algal IC50 mg/l: >100

Organics Readily Degradable Yes (7 days)

(>70%):

Potential Bioaccumulation: Log Pow <1

COD (approximate g/l): 83

BOD5 (approximate g/l): 67

Potential Toxicity

Waste treatment microorganisms >100
EC50 (mg/l):

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): None

American Conference of Governmental Industrial Hygienists (ACGIH): None

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: Ammonium thiosulfate, (as chemical source of aqueous ammonia).

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16. OTHER INFORMATION

US/Canadian Label Statements:

CONTAINS: Ammonium sulfite (010196-04-0)
WARNING!
MAY BE HARMFUL IF SWALLOWED

Keep container tightly closed to prevent the loss of water.
Avoid breathing mist or vapor.
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.

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.

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