

Material Safety Data Sheet



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

Product name: KODAK Rapid Fixer, Working solution (paper)

Product code: 1733013 - Working solution (paper)

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.

Product Use: photographic processing chemical (fixer), For industrial use only.

2. Hazards identification

CONTAINS: Ammonium thiosulphate (7783-18-8), Ammonium sulphite (10196-04-0), Sodium bisulphite (7631-90-5), Sulphuric acid (7664-93-9)

WARNING!

MAY BE HARMFUL IF SWALLOWED.

CAUSES EYE IRRITATION

NFPA Hazard Ratings: Health - 3, Flammability - 0, Instability - 0

NOTE: NFPA 704 (2007) hazard indexes involves data review and interpretation that may vary among companies. It is intended only for rapid, general identification of the magnitude of the potential hazards. To adequately address safe handling, ALL information in this MSDS must be considered.

3. Composition/information on ingredients

| Weight % | Components - (CAS-No.) |
|----------|-----------------------------------|
| 5 - 10 | Ammonium thiosulphate (7783-18-8) |
| 0.1 - 1 | Ammonium sulphite (10196-04-0) |
| 0.1 - 1 | Sodium bisulphite (7631-90-5) |
| 0.1 - 1 | Sulphuric acid (7664-93-9) |
| 0.1 - 1 | Boric acid (10043-35-3) |

4. First aid measures

Inhalation: If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

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

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Ingestion: 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 centre 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.

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

Unusual Fire and Explosion Hazards: None.

6. Accidental release measures

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 precautions: Avoid breathing mist or vapour at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion: Keep from contact with oxidizing materials.

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

8. Exposure controls / personal protection

Occupational exposure controls

| Chemical Name | Regulatory List | Value Type | Value |
|----------------|-----------------|----------------------------|-----------------------|
| Sulphuric acid | OSHA Z1 | Permissible exposure limit | 1 mg/m ³ |
| | ACGIH | time weighted average | 0.2 mg/m ³ |

Form of exposure: Thoracic fraction.

Ventilation: Good general ventilation should be used. Ventilation should be sufficient so that applicable occupational exposure limits are not exceeded. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances.

Respiratory protection: None should be needed. If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. If respirators

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are used, a program should be instituted to assure compliance with applicable federal, state, commonwealth, provincial, or local laws and regulations.

Eye protection: Wear safety glasses with side shields (or goggles).

Hand protection: For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

9. Physical and chemical properties

Physical form: liquid

Colour: colourless

Odour: slight sulphur dioxide

Specific gravity: 1.04

Vapour pressure (at 20.0 °C (68.0 °F)) : 24 mbar (18.0 mm Hg)

Vapour density: 0.6

Volatile fraction by weight: 90 - 95 %

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

Water solubility: complete

pH: 4.4

Flash point: does not flash

10. Stability and reactivity

Stability: Stable under normal conditions.

Incompatibility: Acids, Strong bases, sodium hypochlorite (bleach), Oxidizing agents. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas).

Hazardous decomposition products: Ammonia, chloramine, Sulphur oxides, nitrogen oxides (NO_x).

Hazardous Polymerization: Hazardous polymerisation does not occur.

11. Toxicological information

Effects of Exposure

General advice:

Contains: Sulphuric acid. International Agency for Research on Cancer (IARC) has determined

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that occupational exposure to strong inorganic mists or vapours containing sulfuric acid is carcinogenic to humans. Acute overexposure to extremely high airborne concentrations of respiratory irritants has been associated with development of an asthma-like reactive airways syndrome (RADS) in susceptible individuals. The following exposure effects are based on pH of the solution, concentration of the base, and a review of the literature.

Contains: Boric acid. Based on repeated-dose ingestion studies in animals, may cause adverse reproductive and developmental effects. However, high doses to humans handling this material are not expected since oral consumption is not a likely route of significant exposure.

Inhalation: Expected to be a low hazard for recommended handling. Some asthmatics or hypersensitive individuals may experience difficulty breathing if exposed to aerosols or decomposition products that are not anticipated during normal use.

Eyes: Causes eye irritation.

Skin: Expected to be a low hazard for recommended handling. 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.

Data for Ammonium thiosulphate (CAS 7783-18-8):

Acute Toxicity Data:

- Oral LD50 (male rat): 500 - 5,000 mg/kg

Data for Ammonium sulphite (CAS 10196-04-0):

Acute Toxicity Data:

- Oral LD50 (rat): 2,528 mg/kg
- Oral LD50: 1,904 mg/kg
- Oral LD50 (rat): 2,500 mg/kg (10% in water)
- Oral LD50 (mouse): 1,900 mg/kg (10% in water)
- Inhalation LC50 (rat): > 2.46 mg/l / 6 hr
- Dermal LD50: > 1,000 mg/kg
- Dermal LD50 (guinea pig): >1.0 g/kg
- Skin irritation: slight

Data for Sulphuric acid (CAS 7664-93-9):

Acute Toxicity Data:

- Dermal LD50: > 20 mL/kg

Data for Sodium bisulphite (CAS 7631-90-5):

Acute Toxicity Data:

- Oral LD50 (rat): > 1,600 mg/kg

Data for Boric acid (CAS 10043-35-3):

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Acute Toxicity Data:

- Oral LD50 (rat): > 1,600 mg/kg

12. Ecological information

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

Potential Toxicity:

| | |
|-------------------------------------|---------------|
| Toxicity to fish (LC50): | > 100 mg/l |
| Toxicity to daphnia (EC50): | > 100 mg/l |
| Toxicity to algae (IC50): | 10 - 100 mg/l |
| Toxicity to other organisms (EC50): | > 100 mg/l |

Persistence and degradability: Readily biodegradable.

Chemical Oxygen Demand (COD): ca. 43 g/l

Biochemical Oxygen Demand (BOD): ca. 35 g/l

13. Disposal considerations

Discharge, treatment, or disposal may be subject to federal, state, commonwealth, provincial, or local laws. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

Not regulated for all modes of transportation.

For more transportation information, go to: www.kodak.com/go/ship.

15. Regulatory information

Notification status

| Regulatory List | Notification status |
|-----------------|----------------------|
| EINECS | y (positive listing) |
| TSCA | y (positive listing) |
| AICS | y (positive listing) |
| DSL | y (positive listing) |
| ENCS (JP) | n (Negative listing) |
| KECI (KR) | y (positive listing) |

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PICCS (PH) y (positive listing)
INV (CN) y (positive listing)

A N (Negative listing) indicates one or more component is either not on the public Inventory or is subject to exemption requirements. If additional information is needed contact Kodak.

Other regulations

| | |
|---|---|
| American Conference of Governmental Industrial Hygienists (ACGIH): | Sulphuric acid: Group A2 (Suspected human carcinogen.); Group A2 (contained in strong inorganic acid mists; suspected human carcinogen) |
| International Agency for Research on Cancer (IARC): | Sulphuric acid: 1 (strong inorganic mists or vapours containing sulfuric acid; human carcinogen): 1 (Human carcinogen.) |
| U.S. National Toxicology Program (NTP): | No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. |
| U.S. Occupational Safety and Health Administration (OSHA): | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. |
| California Prop. 65: | none |
| US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required: | Ammonium thiosulphate, Ammonium sulphite |
| US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): | SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. |
| US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323): | Water, Ammonium thiosulphate |
| US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000): | Ammonium thiosulphate |
| US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5): | Water, Ammonium thiosulphate, Sodium acetate |

16. Other information

The data below reflects current legislative requirements whereas the product in your possession may carry a different version of the label depending on the date of manufacture.

US/Canadian Label Statements:

CONTAINS: Ammonium thiosulphate (7783-18-8), Ammonium sulphite (10196-04-0), Sodium bisulphite (7631-90-5), Sulphuric acid (7664-93-9)

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WARNING!
MAY BE HARMFUL IF SWALLOWED.
CAUSES EYE IRRITATION

Keep container tightly closed to prevent the loss of water.
Avoid prolonged or repeated breathing of mist or vapour.
Use only with adequate ventilation.
Avoid contact with eyes, skin, and clothing.
Wash thoroughly after handling.

FIRST AID: If inhaled, remove to fresh air. Get medical attention if symptoms occur. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. Wash off with soap and water. Get medical attention if symptoms occur. 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 centre immediately.

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.

IN CASE OF FIRE: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

IN CASE OF SPILL: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

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-0, C-0