

# 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 (film)

**Product code:** 1733013 - Working solution (film)

**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**

**DRIED PRODUCT RESIDUE CAN ACT AS A REDUCING AGENT.**

**NFPA Hazard Ratings:** Health - 3, Flammability - 1, 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.)
10 - 15	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.

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

**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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Flush with plenty of water.

**Special Fire-Fighting Procedures:** Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products.

**Hazardous Combustion Products:** Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, (see also Hazardous Decomposition Products section).

**Unusual Fire and Explosion Hazards:** Dried product residue can act as a reducing agent. Reacts violently with oxidizing materials. May cause spontaneous heating and ignition when absorbed on combustible, porous material (e.g. rags, paper, sawdust, cotton, clothing).

## 6. Accidental release measures

Absorb spill with vermiculite or other inert material. Collect in a noncombustible container for prompt disposal. Clean surface thoroughly to remove residual contamination.

**For Large Spills:** Flush with plenty of water.

## 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, highly oxygenated or halogenated solvents, organic compounds containing reducible functional groups. Remove and wash contaminated clothing promptly.

**Storage:** Store in original container. 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/m3
	ACGIH	time weighted average <i>Form of exposure: Thoracic fraction.</i>	0.2 mg/m3
Sulphur dioxide	ACGIH	time weighted average	2 ppm
	ACGIH	Short term exposure limit	5 ppm

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OSHA Z1

Permissible exposure limit

5 ppm 13 mg/m3

**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 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:** 1.09

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

**Vapour density:** 0.6

**Volatile fraction by weight:** 80 - 85 %

**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), Halogenated compounds, Oxidizing agents. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas). Contact with strong acids may liberate sulphur dioxide.

**Hazardous decomposition products:** Ammonia, sulphur dioxide, chloramine.

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**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 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 Sodium bisulphite (CAS 7631-90-5):

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### Acute Toxicity Data:

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

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

#### Acute Toxicity Data:

- Dermal LD50: > 20 mL/kg

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

#### 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. 86 g/l

**Biochemical Oxygen Demand (BOD):** ca. 70 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](http://www.kodak.com/go/ship).

## 15. Regulatory information

**Notification status**

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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)
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. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000):	Ammonium thiosulphate
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. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5):	Water, Ammonium thiosulphate, Sodium acetate

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### 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)**

**WARNING!**

**MAY BE HARMFUL IF SWALLOWED.**

**CAUSES EYE IRRITATION**

**DRIED PRODUCT RESIDUE CAN ACT AS A REDUCING AGENT.**

Keep container tightly closed to prevent the loss of water.

Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly.

Avoid prolonged or repeated breathing of mist or vapour.

Avoid contact with eyes, skin, and clothing.

Use only with adequate ventilation.

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.

Do not handle or use until safety precautions in Material Safety Data Sheet (MSDS) have been read and understood.

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

**IN CASE OF FIRE:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Flush with plenty of water.

**IN CASE OF SPILL:** Absorb spill with vermiculite or other inert material. Collect in a noncombustible container for prompt disposal. Clean surface thoroughly to remove residual contamination. For Large Spills: Flush with plenty of water.

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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

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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.

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