

Safety Data Sheet

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

Product name: KODAK Industrial X-ray Fixer and Replenisher

Product code: 7461098

Synonyms: None.

Relevant identified uses of the substance or mixture and uses advised against:

Identified uses: photographic processing chemical

Supplier: EASTMAN KODAK COMPANY, 343 State Street, Rochester, New York 14650

IN EMERGENCY, telephone: 1-800-424-9300 or +1 703-527-3887.

For further information about this product, email us-pep@kodak.com.

2. Hazards identification

Classification of the chemical in accordance with paragraph (d) of 29 CFR 1910.1200:

Hazard class	Hazard category	Route of exposure
Skin irritation	Category 2	--
Serious eye damage	Category 1	--
Skin sensitisation	Category 1A	--
Reproductive toxicant	Category 1B	--
Acute aquatic toxicity	Category 3	--
Chronic aquatic toxicity	Category 3	--

GHS-Labeling

Contains:

Acetic acid (64-19-7), Sodium metabisulphite (7681-57-4), Sodium tetraborate, pentahydrate (12179-04-3), Potassium hydroxide (1310-58-3), Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one (26172-55-4) and 2-methyl-4-isothiazolin-3-one (2682-20-4)(3:1) (55965-84-9)

Symbol(s):

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Signal word: Danger

Hazard statements: Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May damage fertility or the unborn child. Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist or vapours. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ protective clothing/ eye protection/ face protection. Avoid release to the environment.

Response: IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF exposed or concerned: Get medical advice/ attention.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulation.

HMIS IV Hazard Ratings: Health - 3*, Flammability - 0, Physical Hazard - 0

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

NOTE: HMIS IV and NFPA 704 (2007) 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. To adequately address safe handling, ALL information in this MSDS must be considered.

3. Composition/information on ingredients

Weight percent	Components - (CAS-No.)
1 - < 5	Acetic acid (64-19-7)
1 - 5	Sodium metabisulphite (7681-57-4)
1 - 5	Sodium tetraborate, pentahydrate (12179-04-3)

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1 - 5	Aluminium sulphate (10043-01-3)
1 - < 5	Potassium hydroxide (1310-58-3)
0.01 - < 0.02	Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one (26172-55-4) and 2-methyl-4-isothiazolin-3-one (2682-20-4)(3:1) (55965-84-9)

4. First aid measures

Inhalation: If inhaled, remove to fresh air. Get medical attention immediately.

Eyes: Immediately flush the contaminated eye(s) with water for at least 60 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. Contact a physician or poison control center immediately. Continue flushing the eye(s) until the physician advises to stop. If necessary, continue flushing during transport to an emergency care facility.

Skin: Wash off immediately with soap and plenty of water. Get medical attention if symptoms occur. Remove contaminated clothing and shoes. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.

Ingestion: If swallowed, only induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed: Serious Eye Damage: Signs/symptoms may include localized redness, swelling, lachrymation, itching, intense pain, ulceration, tissue destruction and loss of vision.

Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching. Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed:

Treatment: No information available.

5. Firefighting measures

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment..

Special hazards arising from the substance or mixture

Hazardous Combustion Products: None

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

Unusual Fire and Explosion Hazards: None.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Refer to protective measures listed in sections 7 and 8.

Methods and materials for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

Environmental precautions: Prevent runoff from entering drains, sewers, or streams.

For Large Spills: Prevent runoff from entering drains, sewers, or streams.

7. Handling and storage

Precautions for safe handling

Personal precautions: Do not get in eyes, on skin, or on clothing. Do not breathe vapours or spray mist. Use only with adequate ventilation. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

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

Ventilation: Match ventilation rates to conditions of use so as not to exceed any applicable exposure limits (see Section 8).

Conditions for safe storage, including any incompatibilities: Keep in a dry, cool and well-ventilated place. Cool conditions (5 - 30°C). Keep container tightly closed. Keep away from food, drink and animal feeding stuffs. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls/personal protection

Occupational exposure controls

Chemical name	Regulatory List	Value Type	Value
Acetic acid	ACGIH	Time weighted average	10 ppm
Acetic acid		Short term exposure limit	15 ppm
	OSHA	Time weighted average	10 ppm 25 mg/m3

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		Time weighted average	10 ppm 25 mg/m3
		Short term exposure limit	15 ppm 37 mg/m3
Sodium metabisulphite	ACGIH	Time weighted average	5 mg/m3
		Time weighted average	5 mg/m3
Sodium tetraborate, pentahydrate	ACGIH	Time weighted average	2 mg/m3
			<i>Form of exposure: inhalable particulate matter</i>
		Short term exposure limit	6 mg/m3
			<i>Form of exposure: inhalable particulate matter</i>
		Time weighted average	1 mg/m3
			<i>Remarks: regulated under Borates, tetra, sodium salts, pentahydrate</i>
Potassium hydroxide	ACGIH	Ceiling Limit Value	2 mg/m3
		Ceiling Limit Value	2 mg/m3

Appropriate engineering controls: Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Controls should be sufficient so that applicable occupational exposure limits are not exceeded.

Individual protection measures, such as personal protective equipment

Eye protection: Wear safety glasses with side shields (or goggles) and a face shield.

Hand protection: Wear protective gloves/ protective clothing.

Respiratory protection: 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.

9. Physical and chemical properties

Physical form: liquid

Colour: clear Colorless to light yellow

Odour: No data available - testing not performed

Specific gravity: 1.297

Vapour pressure: 20.4 mbar (15.3 mm Hg)

Vapour density: No data available - testing not performed

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Boiling point/boiling range: 100 °C (212.0 °F)

Water solubility: No data available - testing not performed

pH: 4.8 - 5

Flash point: No data available - testing not performed

Evaporation rate: No data available - testing not performed

Flammability (Solid; gas): No data available - testing not performed

Upper explosion limit: No data available - testing not performed

Lower explosion limit: No data available - testing not performed

Partition coefficient: n-octanol/water: No data available - testing not performed

Auto-ignition temperature: No data available - testing not performed

Decomposition temperature: No data available - testing not performed

Viscosity: No data available - testing not performed

Explosive properties: No data available - testing not performed

Oxidizing properties: No data available - testing not performed

10. Stability and reactivity

Reactivity: No data available

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Conditions to avoid: No data available

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Carbon oxides

11. Toxicological information

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Effects of Exposure

General advice:

Contains: Acetic acid. 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. Extremely high airborne concentrations are not generated during normal conditions of use but may occur following a spill. The potential to generate extremely high airborne concentrations in a spill situation depends upon physical factors such as the concentration of the solution, the volume of the spill, the surface area of the spill, the size of the room where the spill occurred, and the ventilation rate in the room.

Contains: Sodium metabisulphite. In contact with strong acids or if heated, sulphites may liberate sulphur dioxide gas. Sulphur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

Contains: Sodium tetraborate, pentahydrate. Based on repeated-dose ingestion studies in animals, may cause adverse reproductive and developmental effects.

Contains: Aluminium sulphate. Ingestion may cause nausea, vomiting, abdominal pains, and diarrhea.

Inhalation: Airborne dust/mist/vapor may be irritating.

Eyes: Causes serious eye damage.

Skin: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: May cause irritation of the gastrointestinal tract if swallowed. May damage fertility or the unborn child if swallowed.

Data for Acetic acid (CAS 64-19-7):

Acute Toxicity Data:

Oral LD50 (Rat): 3,320 mg/kg

- Inhalation LC50 (Rat): 11.4 mg/l / 4 hr
- Dermal LD50 (Rabbit): 1,060 mg/kg
- Skin irritation: severe
- Eye irritation (washed eyes): severe
- Eye irritation (unwashed eyes): severe

Data for Sodium metabisulphite (CAS 7681-57-4):

Acute Toxicity Data:

Oral LD50 (male Rat): 1,900 mg/kg

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- Oral LD50 (female Rat): 1,130 mg/kg
- Dermal LD50: > 1,000 mg/kg
- Skin irritation: moderate (repeated skin application)
- Sensitisation: none (May cause sensitisation of susceptible persons by skin contact or by inhalation of dust.)
- Eye irritation: Risk of serious damage to eyes.

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Oral (14-day, Rat): NOEL; > 1105 mg/kg/day

Data for Sodium tetraborate, pentahydrate (CAS 12179-04-3):

Acute Toxicity Data:

Oral LD50 (Rat): 2,403 mg/kg

- Dermal LD50 (Rabbit): > 2,000 mg/kg
- Skin irritation: none
- Sensitisation: none
- Eye irritation: Irritating to eyes.

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Reproductive Toxicity Data:

- (male and female Rat): LOEL for reproductive toxicity; 336 mg/kg/day

Data for Aluminium sulphate (CAS 10043-01-3):

Acute Toxicity Data:

Oral LD50 (Mouse): 6,207 mg/kg

- Oral LD50 (Rat): 1,930 mg/kg
- Skin irritation: No skin irritation
- Eye irritation: severe

Mutagenicity/Genotoxicity Data:

- Cell transformation assay: negative

Data for Potassium hydroxide (CAS 1310-58-3):

Acute Toxicity Data:

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Oral LD50 (Rat): 273 mg/kg

- Skin irritation: Corrosive
- Eye irritation: Corrosive

Data for Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one (26172-55-4) and 2-methyl-4-isothiazolin-3-one (2682-20-4)(3:1) (CAS 55965-84-9):

Acute Toxicity Data:

Oral LD50 (Rat): 53 mg/kg

- Inhalation LC50 (Rat): 1.4 - 1.5 mg/l / 4 hr (aerosol)
- Dermal LD50 (Rabbit): 87 mg/kg
- Skin irritation: Corrosive (0.6% active ingredient)
- Skin irritation: moderate (0.3% active ingredient)
- Skin irritation: none (0.06% active ingredient)
- Sensitisation (Guinea pig): Causes sensitisation.
- Eye irritation (1.7% active ingredient): Corrosive
- Eye irritation (0.3 - 0.6% active ingredient): Irritating to eyes.
- Eye irritation (0.06% active ingredient): none

Mutagenicity/Genotoxicity Data:

- Salmonella typhimurium assay (Ames test) (TA100): positive (in absence of activation)
- Mouse lymphoma assay: positive (in absence of activation)
- Unscheduled DNA synthesis (UDS) assay: negative
- Chromosomal aberration assay in vivo: negative
- Mouse micronucleus assay: negative

Definitions for the following section(s): LOEL =lowest-observed-effect level, LOAEL = lowest-observed-adverse-effect, NOAEL = no observed-adverse-effect level, NOEL =no-observed-effect level.

Repeated dose toxicity:

- Oral (28-day, Rabbit): NOEL; 0.4 mg/kg/day
- Oral (13 week, Rat): NOEL; 8 mg/kg/day
- Inhalation (14-day, Rat): NOEL; < 0.03 mg/l/6 hours/day

Reproductive Toxicity Data:

- Oral (20 mg/kg/day, Rat): NOEL for reproductive toxicity; 20 mg/kg/day

Carcinogenicity

American Conference of Governmental Industrial Hygienists (ACGIH):

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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International Agency for Research on Cancer (IARC):	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
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	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

12. Ecological information

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

Potential Toxicity:

Toxicity to fish (LC50): 10 - 100 mg/l estimated

Toxicity to daphnia (EC50): 10 - 100 mg/l estimated

Persistence and degradability: Not readily biodegradable.

This product has not been tested for environmental effects.

Bioaccumulative potential

No data available

Mobility in soil

No information available.

13. Disposal considerations

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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
TSCA	Not all listed
DSL	Not all listed
NDSL	None listed
EINECS	Not all listed
ELINCS	None listed
NLP	None listed
AIC	Not all listed
IECS	All listed
ENCS	All listed
ECI	Not all listed
NZIoC	All listed
PICCS	All listed
TCSI	All listed
TSCA 12(b)	Listed

"Not all listed" 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

U.S. - CERCLA/SARA (40 CFR § 302.4 Designation of hazardous substances):

Acetic acid , Aluminium sulphate ,
Potassium hydroxide

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U.S. - CERCLA/SARA - Section 302 (40 CFR § 355 Appendices A and B - The List of Extremely Hazardous Substances and Their Threshold Planning Quantities):	No components of this product are subject to the SARA Section 302 (40 CFR 355) reporting requirements.
U.S. - CERCLA/SARA - Section 313 (40 CFR § 372.65 Toxic Chemical Release Reporting):	Ammonium thiosulphate
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Acetic acid , Sodium metabisulphite , Sodium tetraborate, pentahydrate , Aluminium sulphate , Potassium hydroxide
U.S. - California - 8 CCR Section 5200-5220 - Specifically Regulated Carcinogens:	No components found on the California Specifically Regulated Carcinogens List.
U.S. - California - 8 CCR Section 5203 Carcinogens:	No components found on the California Section 5203 Carcinogens List.
U.S. - California - 8 CCR Section 5209 Carcinogens:	No components found on the California Section 5209 Carcinogens List.
U.S. - Massachusetts - General Law Chapter 111F (MGL c 111F) - Hazardous Substances Disclosure by Employers (a.k.a. Right to Know Law):	Ammonium thiosulphate , Acetic acid , Sodium metabisulphite , Sodium tetraborate, pentahydrate , Aluminium sulphate , Potassium hydroxide
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Acetic acid , Sodium metabisulphite , Sodium tetraborate, pentahydrate , Aluminium sulphate , Potassium hydroxide
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Acetic acid , Sodium metabisulphite , Sodium tetraborate, pentahydrate , Aluminium sulphate , Potassium hydroxide
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):	Water , Ammonium thiosulphate , Acetic acid , Sodium metabisulphite , Sodium tetraborate, pentahydrate , Aluminium sulphate , Potassium hydroxide

16. Other information

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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:

KODAK Industrial X-ray Fixer and Replenisher

Contains:

Acetic acid (64-19-7), Sodium metabisulphite (7681-57-4), Sodium tetraborate, pentahydrate (12179-04-3), Potassium hydroxide (1310-58-3), Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one (26172-55-4) and 2-methyl-4-isothiazolin-3-one (2682-20-4)(3:1) (55965-84-9)

Symbol(s):



Signal word: Danger

Hazard statements: Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May damage fertility or the unborn child. Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist or vapours. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/ protective clothing/ eye protection/ face protection. Avoid release to the environment.

Response: IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF exposed or concerned: Get medical advice/ attention.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulation.

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This Safety Data Sheet has been compiled and is solely intended for this product. The information is based upon the present state of our knowledge.

R-2, S-3, F-0, C-0 REPO