Safety Data Sheet

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

Product name: KODAK Rapid Fixer, Part A

Product code: 1973247 - Part A

Synonyms: PCD 4896

Relevant identified uses of the substance or mixture and uses advised against:
Identified uses: photographic processing chemical (fixer). For industrial use only.

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, call (800) 242-2424.

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	--
Eye irritation	Category 2A	--
Reproductive toxicity	Category 1B	--

GHS-Labelling

Contains:
Boric acid (10043-35-3), Ammonium sulphite (10196-04-0), Acetic acid (64-19-7)

Symbol(s):

Signal word: Danger

Hazard statements: Causes skin irritation. Causes serious eye irritation. May damage fertility or the unborn child.

Precautionary statements:

Prevention: Wash skin thoroughly after handling. Wear protective gloves/ protective clothing/ eye protection/ face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

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

Storage: Store locked up.

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

Other hazards which do not result in classification:

Dried product residue can act as a reducing agent.

HMIS IV Hazard Ratings: Health - 2*, Flammability - 1, Physical Hazard - 0

NFPA Hazard Ratings: Health - 2, Flammability - 1, 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.)
40 - 45	Ammonium thiosulphate (7783-18-8)
5 - 10	Sodium acetate (127-09-3)
1 - 5	Boric acid (10043-35-3)
1 - 5	Ammonium sulphite (10196-04-0)
1 - < 3	Acetic acid (64-19-7)

4. First aid measures

Inhalation: If symptomatic, move to fresh air. Get medical attention if symptoms persist.

Eyes: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If easy to do, remove contact lens, if worn. If eye irritation persists: Get medical advice/ attention.

Skin: Immediately flush 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 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.

Most important symptoms and effects, both acute and delayed: Eye Irritation: Signs/symptoms may include localized redness, swelling, lachrymation, itching, dryness, and pain.

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: Carbon oxides, Sulphur oxides, Nitrogen oxides (NOx), (see also Hazardous Decomposition Products sections.)

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: 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

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: Avoid contact with eyes, skin, and clothing. Avoid breathing mist or vapour. 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
Boric acid	ACGIH	Time weighted average	2 mg/m3
		Form of exposure: inhalable particulate matter	
Boric acid		Short term exposure limit	6 mg/m3
		Form of exposure: inhalable particulate matter	
Acetic acid		Time weighted average	10 ppm
		Short term exposure limit	15 ppm
	OSHA	Time weighted average	10 ppm 25 mg/m3
		Time weighted average	10 ppm 25 mg/m3
		Short term exposure limit	15 ppm 37 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).

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: light yellow

Odour: slight sulphur, slight acetic acid

Specific gravity: 1.32

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

Vapour density: 0.6

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

Water solubility: complete

pH: 5.0

Flash point: does not flash

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: Acids, Strong bases, sodium hypochlorite (bleach), Halogenated compounds, Oxidizing agents. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas). Contact with strong acids liberates sulphur dioxide. Contact with base liberates flammable material. Contact with base liberates ammonia.

Hazardous decomposition products: Ammonia, chloramine, Nitrogen oxides (NOx), Sulphur oxides

11. Toxicological information

Effects of Exposure

General advice: The toxicological properties of this material have not been fully investigated and its handling and use may present additional hazards.

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

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.

Inhalation: Airborne dust/mist/vapor may be irritating. Some asthmatics or hypersensitive individuals may experience difficult breathing after inhaling sulfite salts.

Eyes: Causes serious eye irritation.

Skin: Causes skin irritation.

Ingestion: May be harmful if swallowed. May cause irritation of the gastrointestinal tract if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Acute Toxicity Data:
Oral LD50 (Rat): > 2,540 mg/kg

- Dermal LD50: 20 mL/kg

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

Acute Toxicity Data:
Oral LD50 (Rat): 2,890 mg/kg

- Inhalation (Rat): 2260 mg/m3 / 4 hr
- Eye irritation: none

Data for Sodium acetate (CAS 127-09-3):

Acute Toxicity Data:
Oral LD50 (male Rat): > 3,200 mg/kg (No mortality observed at this dose.)

- Oral LD50 (male Mouse): > 3,200 mg/kg
- Oral LD50 (Rat): 3,530 mg/kg
- Inhalation LC50 (Rat): > 30 g/m3 / 1 hr
- Dermal LD50: > 1,000 mg/kg
- Dermal LD50 (Rabbit): > 10 g/kg
- Skin irritation: slight
- Skin irritation: Mild skin irritation
- Eye irritation: none

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

Acute Toxicity Data:
Oral LD50 (Rat): 2,660 mg/kg

- Dermal LD50 (Rabbit): > 2,000 mg/kg
- Skin irritation: moderate
- Sensitisation (Guinea pig): none
- Eye irritation: slight irritation

Mutagenicity/Genotoxicity Data:

- Salmonella/Mammalian-Microsome Reverse Mutation Screening Assay (TA98, TA100,

TA1535, TA1537, TA1538): negative (in presence and absence of activation)
- Mouse lymphoma assay: negative (in presence and absence of activation)
- Sister chromatid exchange (SCE) assay (Chinese Hamster Ovary (CHO)): negative (in presence and absence of activation)
- Unscheduled DNA synthesis (UDS) assay (rat hepatocytes): negative (in absence of activation)
- 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:
- Feeding study (24 months, male and female Rat): NOAEL; 100 mg/kg/day
- Feeding study (24 months, male and female Rat): Lowest observed effect level; 334 mg/kg/day (target organ effects: testes)

Developmental Toxicity Data:
- Oral (female Rat): maternal NOAEL; 78mg/kg/day
- Oral (female Rat): NOAEL for developmental toxicity; < 78mg/kg/day

Reproductive Toxicity Data:
- Feeding Study (male and female Mouse): NOEL for reproductive toxicity; < 152 mg/kg/day

Carcinogenicity:
- Oral study (females Mouse, 2 years): NOEL; 1,150 mg/kg/day

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

Acute Toxicity Data:
Oral LD50 (Rat): 2,528 mg/kg
- Inhalation LC50 (Rat): > 2.46 mg/l / 6 hr
- Dermal LD50 (Guinea pig): >1.0 g/kg
- Skin irritation: slight

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

Acute Toxicity Data:
Oral LD50 (Rat): 3,320 mg/kg
- Oral LD50 (Rat): 3,310 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

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.
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):	> 100 mg/l estimated
Toxicity to daphnia (EC50):	> 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

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	All listed
DSL	All listed
NDSL	None listed
EINECS	All listed
ELINCS	None listed
NLP	None listed
AICS	All listed
IECS	All listed
ENCS	All listed
ECI	All listed
NZIoC	All listed
PICCS	All listed
TCSI	All 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):	Ammonium sulphite , Acetic acid
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 , Ammonium sulphite
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Ammonium sulphite , Acetic acid
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 , Ammonium sulphite , Acetic acid
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Acetic acid
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):	Water , Ammonium thiosulphate , Sodium acetate , Boric acid , Ammonium sulphite , Acetic acid , Sodium bisulphite
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Boric acid , Ammonium sulphite , Acetic acid

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:

KODAK Rapid Fixer, Part A

Contains:

Boric acid (10043-35-3), Ammonium sulphite (10196-04-0), Acetic acid (64-19-7)

Symbol(s):

Signal word: Danger

Hazard statements: Causes skin irritation. Causes serious eye irritation. May damage fertility or the unborn child.

Precautionary statements:

Prevention: Wash skin thoroughly after handling. Wear protective gloves/ protective clothing/ eye protection/ face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

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

Storage: Store locked up.

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

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.