MATERIAL SAFETY DATA SHEET

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

Product name: KODAK Fixer

Product code: 1971746

Manufacturer: KODAK-INDUSTRIE, route de Demigny, CHALON S/SAONE, 71102; EASTMAN KODAK COMPANY, 343 State Street, Rochester, New York, 14650

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: PCD 6010

2. Hazards identification

CONTAINS: Sodium thiosulphate (7772-98-7), Ammonium alum, dodecahydrate (7784-26-1), Sodium metabisulphite (7681-57-4), Boric anhydride (1303-86-2)

WARNING!
CAUSES SKIN AND EYE IRRITATION
MAY BE HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED
DUST IRRITATING TO THE EYES AND RESPIRATORY TRACT
REDUCING AGENT
POWDERED MATERIAL MAY FORM EXPLOSIVE DUST-AIR MIXTURES
MAY LIBERATE SULFUR DIOXIDE

HMIS II Hazard Ratings:
Health - 2, Flammability - 1, Reactivity (Stability) - 0

NFPA Hazard Ratings:
Health - 3, Flammability - 1, Instability - 0

NOTE: HMIS II 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. An asterisk (*), in the HMIS II health field, designates potential chronic or target organ hazards. To adequately address safe handling, ALL information in this MSDS must be considered.

3. Composition/information on ingredients

Weight %	Components (CAS-No.)
70 - 75	Sodium thiosulphate (7772-98-7)
10 - 15	Ammonium alum, dodecahydrate (7784-26-1)
5 - 10	Sodium acetate (127-09-3)
5 - 10	Sodium metabisulphite (7681-57-4)

1 - 5	Boric anhydride (1303-86-2)

4. First aid measures

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention.

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

Skin: In case of contact, immediately flush 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.

Ingestion: Only induce vomiting at the instruction of medical personnel. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

5. Fire-fighting measures

Extinguishing Media: water spray, carbon dioxide (CO2), dry chemical. Flush with plenty of water.

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

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

Unusual Fire and Explosion Hazards: Reducing agent. Reacts violently with oxidizing materials. Accumulations of powdered material may self-heat upon exposure to air. Dust may form explosive mixture in air.

6. Accidental release measures

Methods for cleaning up: Collect in a noncombustible container for prompt disposal. Avoid dust formation.

For Large Spills: Flush with plenty of water.

7. Handling and storage

Personal precautions: Avoid breathing dust at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. Ensure 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. Dust may form explosive mixture in air. Minimize dust generation and accumulation. Ensure adequate ventilation. Keep away from sources of ignition - No smoking. Refer to NFPA Pamphlet No. 654, "Prevention of Fire and Dust Explosions in the Chemical, Dye, Pharmaceutical, and Plastics Industries."

Storage: Store in original container. Keep container tightly closed. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls / personal protection

Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Boric anhydride	ACGIH	Time Weighted Average (TWA):	10 mg/m3
	OSHA Z1	PEL:	15 mg/m3
		Form of exposure: Total dust.	
	Z3		
		Form of exposure: Respirable fraction.	
		Remarks: Listed.	
	Z3		
		Form of exposure: Total dust.	
		Remarks: Listed.	
Sodium metabisulphite	ACGIH	Time Weighted Average (TWA):	5 mg/m3
Sulphur dioxide	ACGIH	Time Weighted Average (TWA):	2 ppm
	ACGIH	Short Term Exposure Limit (STEL):	5 ppm
	OSHA Z1	PEL:	5 ppm 13 mg/m3
Ammonium alum, dodecahydrate	ACGIH	Time Weighted Average (TWA):	2 mg/m3
		Expressed as Al	

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: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: N95 Particulate Filter. A respirator should be worn if hazardous decomposition products are likely to be or have been released. Respirator type: Acid gas. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29CFR 1910.134 and 29CFR1910.1048.

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

Skin and body protection: Wear impervious gloves and protective clothing appropriate for the risk of exposure.

Recommended Decontamination Facilities: Safety shower, eye wash, washing facilities as appropriate to condition of use.

9. Physical and Chemical Properties

Physical form: solid

Colour: white

Odour: odourless

Specific gravity: not available

Vapour pressure: negligible

Relative vapour density: not applicable

Volatile fraction by weight: negligible

Melting point/range: not available

Water solubility: appreciable

pH: not applicable

Flash point: not applicable, combustible solid

10. Stability and reactivity

Stability: Stable.

Incompatibility: Strong oxidizing agents, acids, halogenated materials, strong bases, sodium hypochlorite (bleach). Contact with base liberates flammable material. Contact with base liberates ammonia. Contact with strong acids liberates sulphur dioxide. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas).

Hazardous decomposition products: sulphur dioxide.

Hazardous Polymerization: Hazardous polymerisation does not occur.

11. Toxicological information

Effects of Exposure

General advice:

Contains: Sodium thiosulphate. The toxicological properties of this material have not been fully investigated and its handling and use may present additional hazards. Expected to be a low health hazard for recommended handling.

Contains: Boric anhydride. Based on repeated-dose ingestion studies in animals, may cause adverse reproductive and developmental effects. However, the doses administered were many times those to which humans would normally be exposed.

Inhalation: May be harmful if inhaled. Airborne dust irritating. 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.

Eyes: Causes eye irritation. Airborne dust irritating.

Skin: Causes irritation. May be absorbed in toxic amounts through damaged or abraded 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. May cause irritation of the gastrointestinal tract. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Acute Toxicity Data:

- Oral LD50 (rat): 2.1 - 5.5 mL/kg
- Dermal LD50: > 20 mL/kg
- Skin Sensitization: low potential

12. Ecological information

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

Potential Toxicity:

Fish LC50:	> 100 mg/l
Daphnid EC50:	10 - 100 mg/l
Algal IC50:	10 - 100 mg/l
Waste treatment organisms EC50:	> 100 mg/l
Organics Readily Degradable:	Readily biodegradable
Potential Bioaccumulation:	log Pow < 1
COD (approximate):	248 g/l
BOD (approximate):	200 g/l

13. Disposal considerations

Discharge, treatment, or disposal is subject to national, state, provincial, or municipal laws. Consult state or local regulatory authorities before flushing to sewer with large amounts of water. 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 transportation information regarding this product call the Kodak Worldwide Transportation Hazmat Hot Line: (585) 722-2400 between 8 a.m. and 5 p.m. (Eastern Standard Time), Monday through Friday. In Canada: General Shipping Information, call: (416) 766-8233.

15. Regulatory information

U.S. California Prop. 65: none

Carcinogenicity Classification (components present at 0.1% or more):
International Agency for Research on Cancer (IARC): Sulphur dioxide: 3 (not classifiable as to carcinogenicity to humans), Sodium metabisulphite: 3 (Classification not possible from current data.)
American Conference of Governmental Industrial Hygienists (ACGIH): Sulphur dioxide: Group A4 (Not classifiable as a human carcinogen.), Sodium metabisulphite: Group A4 (Not classifiable as a human carcinogen.)
U.S. National Toxicology Program (NTP): none
U.S. Occupational Safety and Health Administration (OSHA): none

Chemical(s) subject to the reporting requirements of U.S. Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372: none

16. Other information

US/Canadian Label Statements:

CONTAINS: Sodium thiosulphate (7772-98-7), Ammonium alum, dodecahydrate (7784-26-1), Sodium metabisulphite (7681-57-4), Boric anhydride (1303-86-2)

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MAY LIBERATE SULFUR DIOXIDE

Avoid breathing dust at concentrations greater than the exposure limits.
Avoid contact with eyes, skin, and clothing.
Ensure adequate ventilation.
Wash thoroughly after handling.
Keep away from combustible material.
Store in original tightly closed container.
Keep from contact with clothing and other materials. Remove and wash contaminated clothing promptly.
Minimize dust generation and accumulation.

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. If inhaled, move to fresh air. Treat symptomatically. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. In case of skin contact, 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.

Keep out of reach of children.

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

Additional hazard precautions for containers greater than 1 gallon of liquid or 5 pounds of solid:

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

IN CASE OF FIRE: Use water spray, carbon dioxide (CO2), dry chemical

IN CASE OF SPILL: Flush with plenty of water.

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