MSDS Product Name: KODAK Rapid Fixer

MATERIAL SAFETY DATA SHEET

200000591/F/USA  
Approval Date: 03/04/1998  
Print Date: 04/29/2000  
Page 1

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KODAK Rapid Fixer

<table>
<thead>
<tr>
<th>Catalog Number(s)</th>
<th>Description</th>
<th>CAS Registry No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>146 4106</td>
<td>To Make 1 gallon (U.S.)</td>
<td></td>
</tr>
<tr>
<td>146 4114</td>
<td>To Make 5 gallons (U.S.)</td>
<td></td>
</tr>
<tr>
<td>197 3247</td>
<td>5 gallons (U.S.) - Part A</td>
<td></td>
</tr>
<tr>
<td>128 2839</td>
<td>30 gallons (U.S.) - Part A</td>
<td></td>
</tr>
<tr>
<td>186 6342</td>
<td>52 gallons (U.S.) - Part A</td>
<td></td>
</tr>
<tr>
<td>173 3013</td>
<td>72 ounce(s) - Part B</td>
<td></td>
</tr>
<tr>
<td>197 3221</td>
<td>5 gallons (U.S.) - Part B</td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer/Supplier: EASTMAN KODAK COMPANY, Rochester, New York 14650

For Emergency Health, Safety & Environmental Information, call (716) 722-5151

For other information or to request an MSDS, call (800) 242-2424.

Synonym(s):  
Part A: KAN 427810, PCD 4896, D-0018.000  
Part B: CIN 10066362, KAN 365686, PCD 4415, PCD 14817, D-0019.000  
Working solution (film): KAN 471329, D-0018.100  
Working solution (paper): KAN 471330, D-0019.100

2. COMPOSITION/INFORMATION ON INGREDIENTS

Weight % - Component - (CAS Registry No.)

Part A:

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Component</th>
<th>CAS Registry No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-45</td>
<td>Water (007732-18-5)</td>
<td></td>
</tr>
<tr>
<td>40-45</td>
<td>Ammonium thiosulfate (007783-18-8)</td>
<td></td>
</tr>
<tr>
<td>5-10</td>
<td>Sodium acetate (000127-09-3)</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>Boric acid (010043-35-3)</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>Ammonium sulfite (010196-04-0)</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>Acetic acid (000064-19-7)</td>
<td></td>
</tr>
<tr>
<td>&lt;1</td>
<td>Sodium bisulfite (007631-90-5)</td>
<td></td>
</tr>
</tbody>
</table>

Part B:

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Component</th>
<th>CAS Registry No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-75</td>
<td>Water (007732-18-5)</td>
<td></td>
</tr>
<tr>
<td>15-20</td>
<td>Aluminum sulfate (010043-01-3)</td>
<td></td>
</tr>
<tr>
<td>10-15</td>
<td>Sulfuric acid (007664-93-9)</td>
<td></td>
</tr>
</tbody>
</table>

Working solution (film):
80-85 Water (007732-18-5)  
10-15 Ammonium thiosulfate (007783-18-8)  
1-5 Sodium acetate (000127-09-3)  
< 1 Boric acid (010043-35-3)  
< 1 Ammonium sulfite (010196-04-0)  
< 1 Acetic acid (000064-19-7)

Working solution (paper):  
90-95 Water (007732-18-5)  
5-10 Ammonium thiosulfate (007783-18-8)  
1-5 Sodium acetate (000127-09-3)  
< 1 Boric acid (010043-35-3)  
< 1 Ammonium sulfite (010196-04-0)  
< 1 Acetic acid (000064-19-7)

3. HAZARDS IDENTIFICATION

Part A:

CONTAINS: Boric acid (010043-35-3); ammonium sulfite (010196-04-0); acetic acid (000064-19-7); sodium bisulfite (007631-90-5)  
WARNING!  
MAY BE HARMFUL IF SWALLOWED  
MAY BE HARMFUL IF ABSORBED THROUGH SKIN

HMIS Hazard Ratings:
Health - 1, Flammability - 0, Reactivity - 0, Personal Protection - B

NFPA Hazard Ratings:
Health - 1, Flammability - 0, Reactivity (Stability) - 0

Part B:

CONTAINS: Sulfuric acid (007664-93-9)  
DANGER!  
POISON  
MAY BE FATAL OR HARMFUL IF SWALLOWED  
CAUSES SKIN AND EYE IRRITATION

HMIS Hazard Ratings:
Health - 2, Flammability - 0, Reactivity - 0, Personal Protection - C

NFPA Hazard Ratings:
Health - 2, Flammability - 0, Reactivity (Stability) - 0

Working solution (film):

CONTAINS: Ammonium sulfite (010196-04-0)  
WARNING!  
MAY BE HARMFUL IF SWALLOWED

HMIS Hazard Ratings:
Health - 1, Flammability - 0, Reactivity - 0, Personal Protection - A

NFPA Hazard Ratings:
Health - 1, Flammability - 0, Reactivity (Stability) - 0
Working solution (paper):

CONTAINS: Ammonium sulfite (010196-04-0)
WARNING!
MAY BE HARMFUL IF SWALLOWED

HMIS Hazard Ratings:
Health - 1, Flammability - 0, Reactivity - 0, Personal Protection - A

NFPA Hazard Ratings:
Health - 0, Flammability - 0, Reactivity (Stability) - 0

NOTE: HMIS 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. The personal protection index is only intended for general guidance on personal protection equipment (PPE) that is suitable for the potential hazards of the material. PPE (e.g., respirators) may not be needed if engineering controls (e.g., local ventilation) are adequate. An asterisk (*), in the HMIS health field, designates potential chronic or target organ hazards. To adequately address safe handling, ALL information in this MSDS must be considered.

4. FIRST-AID MEASURES

Inhalation: If symptomatic, move to fresh air. Treat symptomatically. Get medical attention if symptoms occur.

Eyes:

Part A & Working solution: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

Part B: Immediately flush with plenty of water for at least 15 minutes. Get medical attention.

Skin:

Part A & Working solution: Wash with soap and water. Get medical attention if symptoms occur.

Part B: 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 reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion:

Part A: 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.

Part B: Do NOT induce vomiting. Give victim a glass of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Working solution: Drink 1-2 glasses of water. Seek medical attention. Never give anything by mouth to an unconscious person.

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5. FIRE FIGHTING MEASURES

Extinguishing Media: Use appropriate agent for adjacent fire.

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

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6. ACCIDENTAL RELEASE MEASURES

May require neutralization if pH < 2.0 or > 12.5. Flush to sewer with large amounts of water. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

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7. HANDLING AND STORAGE

Personal Precautionary Measures:

Part A: Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

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

Working solution: Avoid breathing mist or vapor. Avoid contact with eyes and prolonged or repeated contact with skin. Use with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion:

Part A & Working solution: Keep from contact with oxidizing materials.

Part B: No special precautionary measures should be needed under anticipated conditions of use.

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

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:
ACGIH Threshold Limit Value (TLV):

- Acetic acid: 10 ppm TWA; 15 ppm STEL
- Aluminum sulfate: 2 mg/m³ TWA, as Al soluble salts
- Sulfuric acid: 1 mg/m³ TWA; 3 mg/m³ STEL
- Sodium bisulfite: 5 mg/m³ TWA

OSHA (USA) Permissible Exposure Limit (PEL - 1971 Table Z-1 Values):

- Acetic acid: 10 ppm TWA
- Sulfuric acid: 1 mg/m³ TWA

Ventilation: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory protection may be needed in special circumstances such as poorly ventilated spaces, evaporation from large surfaces, spraying, heating, etc.

Respiratory Protection:

Part A & Working solution: None should be needed. A respirator should be worn if hazardous decomposition products are likely to be or have been released. Respirator type: Full-face positive-pressure air-supplied. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

Part B: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: Full-face cartridge respirator; acid gas with dust/mist prefilter. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

Eye Protection: Wear safety glasses with side shields (or goggles).
Skin Protection: Wear impervious gloves and protective clothing appropriate for the risk of exposure.

Recommended Decontamination Facilities: Eye bath, washing facilities, safety shower

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9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Part A</th>
<th>Part B</th>
<th>Working solution</th>
<th>Working solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(film)</td>
<td>(paper)</td>
</tr>
</tbody>
</table>

Physical Form: liquid liquid liquid liquid

Color: light yellow colorless colorless colorless

Odor: slight sulfur dioxide, slight sulfur dioxide, slight sulfur dioxide, acetic acid

Specific Gravity (water):

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.32</td>
<td>1.30</td>
<td>1.09</td>
<td>1.04</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility:

Part A: Bases, sodium hypochlorite (bleach), strong oxidizing agents, strong acids. Contact with base liberates flammable material.

Part B: Bases

Working solution: Bases, sodium hypochlorite (bleach), strong oxidizing agents, strong acids.

Hazardous Decomposition Products:

Part A: Ammonia, nitrogen oxides (NOx), sulfur dioxide, chloramine, carbon dioxide, carbon monoxide

Part B: Sulfur dioxide

Working solution: Ammonia, nitrogen oxides (NOx), sulfur dioxide, chloramine

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Effects of Exposure:
General:

Part A: Contains: boric acid. 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.

Part B: Contains: sulfuric acid. International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong inorganic mists or vapors containing sulfuric acid is carcinogenic to humans. This product is not expected to generate mists or vapors when product instructions for mixing and use are followed.

Inhalation:

Part A & Working solution: Expected to be a low hazard for recommended handling. In contact with strong acids or if heated, sulfites may liberate sulfur dioxide gas. Sulfur dioxide gas is irritating to the respiratory tract. Some asthmatics or hypersensitive individuals may experience difficult breathing.

Part B: Expected to be a low hazard for recommended handling.

Eyes:

Part A & Working solution: No specific hazard known. May cause transient irritation.

Part B: Causes irritation.

Skin:

Part A: 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.

Part B: Causes irritation.

Working solution: This material has a low potential to cause allergic skin reactions; however, cases of human skin sensitization have been reported.

Ingestion:

Part A & Working solution: May be harmful if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Part B: May be fatal or harmful if swallowed. May cause burns of the gastrointestinal tract if swallowed.

Acute Toxicity Data:

Data for Part A

Oral LD-50 (rat): > 2540 mg/kg
Dermal LD-50: > 20 mL/kg
Skin irritation: slight  
Eye irritation: slight

Data for Part B

Oral LD-50 (rat): 0.5-5.0 g/kg  
Skin irritation: moderate  
Eye irritation: slight  
Skin sensitization: negative

12. ECOLOGICAL INFORMATION

Introduction: This environmental effects summary is written to assist in addressing emergencies created by an accidental spill which might occur during the shipment of this material, and, in general, it is not meant to address discharges to sanitary sewers or publically owned treatment works.

Summary: Data for the major components of this material have been used to estimate the environmental impact of this material. However, this material, itself, has not been tested for environmental effects.

Part A:

This material is a moderately acidic aqueous solution, and this property may cause adverse environmental effects. It is expected to have the following properties: a high biochemical oxygen demand and a potential to cause oxygen depletion in aqueous systems, a low potential to affect aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism, a high potential to affect the growth of some plant seedlings, a low potential to persist in the environment, a low potential to bioconcentrate. After dilution with a large amount of water, followed by secondary waste treatment, this material is not expected to cause adverse environmental effects.

Part B:

This material is a strongly acidic aqueous solution, and this property may cause adverse environmental effects. It is expected to have the following properties: no biochemical oxygen demand and no potential to cause oxygen depletion in aqueous systems, a high potential to affect some aquatic organisms, a low potential to affect secondary waste treatment microbial metabolism, a low potential to affect the germination and/or early growth of some plants, a low potential to bioconcentrate. After dilution with a large amount of water, followed by secondary waste treatment, this material is not expected to cause adverse environmental effects.

13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. May require neutralization if pH < 2.0 or pH > 12.5. Flush to sewer with large amounts of water.

Part B: Since emptied containers retain product residue, follow label warnings even after container is emptied.
14. TRANSPORT INFORMATION

For transportation information regarding this product call the Kodak Worldwide Transportation Hazmat Hot Line: (716) 722-2400 between 8 a.m. and 5 p.m. (Eastern Standard Time), Monday through Friday.

15. REGULATORY INFORMATION

Material(s) known to the State of California to cause cancer: None
Material(s) known to the State of California to cause adverse reproductive effects: None

Carcinogenicity Classification (components present at 0.1% or more):
- International Agency for Research on Cancer (IARC): Group 1A, Strong inorganic mists or vapors containing sulfuric acid
- American Conference of Governmental Industrial Hygienists (ACGIH): Sulfuric acid (A2)
- National Toxicology Program (NTP): None
- Occupational Safety and Health Administration (OSHA): None

Chemical(s) subject to the reporting requirements of 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:

Part A:

WARNING! CONTAINS: Boric acid (010043-35-3); ammonium sulfite (010196-04-0); acetic acid (000064-19-7); sodium bisulfite (007631-90-5)
MAY BE HARMFUL IF SWALLOWED
MAY BE HARMFUL IF ABSORBED THROUGH SKIN

Avoid breathing mist or vapor.
Avoid contact with eyes, skin, and clothing.
Use with adequate ventilation.
Wash thoroughly after handling.

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. In case of skin contact, wash skin with soap and plenty of water. Get medical attention if symptoms occur.

Keep out of reach of children.
For additional information, see Material Safety Data Sheet (MSDS) for this material.

Part B:
CONTAINS: Sulfuric acid (007664-93-9)
DANGER! POISON
MAY BE FATAL OR HARMFUL IF SWALLOWED
CAUSES SKIN AND EYE IRRITATION

Avoid breathing mist.
Use with adequate ventilation.
Avoid contact with eyes, skin, and clothing.
Wash thoroughly after handling.

FIRST AID: If swallowed, do NOT induce vomiting. Give victim a glass of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. In case of contact, immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Keep out of reach of children.

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

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

Working solution:

CONTAINS: Ammonium sulfite (010196-04-0)
WARNING!
MAY BE HARMFUL IF SWALLOWED

Avoid breathing mist or vapor.
Avoid contact with eyes and prolonged or repeated contact with skin.
Use with adequate ventilation.
Wash thoroughly after handling.

FIRST AID: If swallowed, seek medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Keep out of reach of children.

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

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.

A: R-1, S-2, F-0, C-0
B: R-1, S-2, F-0, C-0
WS:R-1, S-1, F-0, C-0 - Working solution (film)
WS:R-1, S-1, F-0, C-0 - Working solution (paper)