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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KODAK FLEXICOLOR Fixer and Replenisher

Catalog Number(s): 156 5175 - To Make 1 gallon (U.S.)
169 3837 - To Make 5 gallon (U.S.)
159 7392 - To Make 25 gallon (U.S.)
163 7735 - To Make 75 gallon (U.S.)
198 3550 - To Make 5 litres
132 3120 - To Make 5 litres (JAPAN)

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

For Emergency Health, Safety & Environmental Information, call (585) 722-5151

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

Synonym(s): Concentrate: KAN 448529; PCD 5542
Working solution: KAN 448529; Q-0035.710; Contains: PCD 5542 - Concentrate

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Weight % - Component - (CAS Registry No.)

Concentrate:

54	Ammonium thiosulfate (007783-18-8)
35-40	Water (007732-18-5)
3	Ammonium sulfite (010196-04-0)
1-5	Sodium bisulfite (007631-90-5)
< 1	Ammonium bisulfite (010192-30-0)

Working solution:

80-85	Water (007732-18-5)
12	Ammonium thiosulfate (007783-18-8)
< 1	Ammonium sulfite (010196-04-0)
< 1	Sodium bisulfite (007631-90-5)
< 1	Ammonium bisulfite (010192-30-0)

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3. HAZARDS IDENTIFICATION

Concentrate:

CONTAINS: Ammonium sulfite (010196-04-0), Sodium bisulfite (007631-90-5), Ammonium bisulfite (010192-30-0), Ammonium thiosulfate (007783-18-8)
CAUTION!
MAY BE HARMFUL IF SWALLOWED
DRIED PRODUCT RESIDUE CAN ACT AS A REDUCING AGENT. DRYING ON CLOTHING OR OTHER MATERIALS MAY CAUSE FIRE.

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

NFPA Hazard Ratings:
Health - 3, Flammability - 1, Reactivity (Stability) - 0

Working solution:

CONTAINS: Ammonium sulfite (010196-04-0), Sodium bisulfite (007631-90-5), Ammonium bisulfite (010192-30-0)

WARNING!
MAY BE HARMFUL IF SWALLOWED

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

NFPA Hazard Ratings:
Health - 1, Flammability - 1, 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.

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4. FIRST-AID MEASURES

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

Eyes: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

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

Ingestion: 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:

Concentrate: Flood with water.

Working solution: Use alcohol foam, carbon dioxide (CO_2), dry chemical, water spray.

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

Hazardous Combustion Products: Oxides of nitrogen, Oxides of sulfur (see also Hazardous Decomposition Products section).

Unusual Fire and Explosion Hazards: Solution contains a strong reducing agent. Dried product residue can act as a reducing agent.

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6. ACCIDENTAL RELEASE MEASURES

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: 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:

Concentrate: Keep away from combustible material. Remove and wash contaminated clothing promptly. Keep from contact with oxidizing materials, highly oxygenated or halogenated solvents, organic compounds containing reducible functional groups.

Working solution: Keep from contact with oxidizing materials, highly oxygenated or halogenated solvents, organic compounds containing reducible functional groups.

Storage:

Concentrate: Keep container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section). Do not store or ship together with combustible material. Store in original container.

Working solution: Keep container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section).

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

ACGIH Threshold Limit Value (TLV):

Sodium bisulfite: 5 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: 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. See Stability and Reactivity Section. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

Eye Protection: It is a good industrial hygiene practice to minimize eye contact. Wear safety glasses with side shields (or goggles).

Skin Protection: It is a good industrial hygiene practice to minimize skin contact. For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

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

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Light yellow
Odor: Odorless
Specific Gravity (water = 1):
  Concentrate: 1.35
  Working solution: 1.17
Vapor Pressure at 20°C (68°F): 24 mbar (18 mm Hg)
Vapor Density (Air = 1): 0.6
Volatile Fraction by Weight:
  Concentrate: 30-40%
  Working solution: 80-85%
Boiling Point: >100°C (>212°F)
Solubility in Water: Complete
pH:
  Concentrate: 6.2
  Working solution: 6.5
Flash Point: None

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10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility:

Concentrate: Strong oxidizing agents, combustible material, halogenated materials, bases, sodium hypochlorite (bleach), strong acids. Contact with base liberates flammable material.

Working solution: Strong oxidizing agents, combustible material, halogenated materials, bases, sodium hypochlorite (bleach), strong acids

Hazardous Decomposition Products: Ammonia, sulfur dioxide, chloramine.

Hazardous Polymerization: Will not occur.

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11. TOXICOLOGICAL INFORMATION

Effects of Exposure:

Inhalation: Expected to be a low hazard for usual industrial or commercial handling by trained personnel. 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.

Eyes: No specific hazard known. May cause transient irritation.

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

Ingestion:

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

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.

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12. ECOLOGICAL INFORMATION

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

	Concentrate	Working Solution
Potential Toxicity		
Fish LC50 mg/l:	>100	>100
Daphnid EC50 mg/l:	>100	>100
Algal IC50 mg/l:	>100	>100
Organics Readily Degradable (>70%):	Yes (7 days)	Yes (7 days)
Potential Bioaccumulation:	Log Pow <1	Log Pow <1
COD (approximate g/l):	340	70
BOD5 (approximate g/l):	275	55
Potential Toxicity Waste treatment microorganisms EC50 (mg/l):	>100	>100

After dilution with a large amount of water, followed by secondary waste treatment, this material is not expected to cause adverse environmental effects.

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13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local 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.

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14. TRANSPORT INFORMATION

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.

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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): None
  - American Conference of Governmental Industrial Hygienists (ACGIH): sodium bisulfite, not classifiable as a human carcinogen.
  - 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: Ammonium thiosulfate, Ammonium sulfite, Ammonium bisulfite as sources of aqueous ammonia.

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16. OTHER INFORMATION

US/Canadian Label Statements:

Concentrate:

CONTAINS: Ammonium sulfite (010196-04-0), Sodium bisulfite (007631-90-5), Ammonium bisulfite (010192-30-0), Ammonium thiosulfate (007783-18-8)

CAUTION!
MAY BE HARMFUL IF SWALLOWED
DRIED PRODUCT RESIDUE CAN ACT AS A REDUCING AGENT. DRYING ON CLOTHING OR OTHER MATERIALS MAY CAUSE FIRE.

Avoid breathing mist or vapor.
Avoid contact with eyes and prolonged or repeated contact with skin.
Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly.
Keep container tightly closed to prevent the loss of water.
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

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

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

IN CASE OF FIRE: Flood with water.

Working solution:

CONTAINS: Ammonium sulfite (010196-04-0), Sodium bisulfite (007631-90-5), Ammonium bisulfite (010192-30-0)

WARNING!

MAY BE HARMFUL IF SWALLOWED

Avoid breathing mist or vapor.
Avoid contact with eyes and prolonged or repeated contact with skin.
Keep container tightly closed to prevent the loss of water.
Use with adequate ventilation.
Wash thoroughly after handling.

FIRST AID: If swallowed, seek medical advice. Never give anything by mouth to an unconscious person.

Keep out of reach of children

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

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

IN CASE OF FIRE: Use water spray, carbon dioxide (CO_2), dry chemical, alcohol foam.

R-1, S-1, F-1, C-1
WS:R-1, S-1, F-1, C-0

MATERIAL SAFETY DATA SHEET

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KODAK FLEXICOLOR Fixer and Replenisher (Working solution)

Catalog Number(s): 156 5175 - To Make 1 gallon (U.S.)
169 3837 - To Make 5 gallon (U.S.)
159 7392 - To Make 25 gallon (U.S.)
163 7735 - To Make 75 gallon (U.S.)
198 3550 - To Make 5 litres
132 3120 - To Make 5 litres (JAPAN)

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

For Emergency Health, Safety & Environmental Information, call (585) 722-5151

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

Synonym(s): KAN 448529 Contains: PCD 5542; Q-0025.710

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Weight %	Component - (CAS Registry No.)
80-90	Water (007732-18-5)
12	Ammonium thiosulfate (007783-18-8)
< 1	Ammonium sulfite (010196-04-0)
< 1	Sodium bisulfite (007631-90-5)
< 1	Ammonium bisulfite (010192-30-0)

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3. HAZARDS IDENTIFICATION

CONTAINS: Ammonium sulfite (010196-04-0), Sodium bisulfite (007631-90-5), Ammonium bisulfite (010192-30-0)

WARNING!
MAY BE HARMFUL IF SWALLOWED

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

NFPA Hazard Ratings:
Health - 1, Flammability - 1, 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.

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4. FIRST-AID MEASURES

Inhalation: If symptomatic, move to fresh air. Treat symptomatically. Get

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medical attention if symptoms persist.

Eyes: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

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

Ingestion: 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 Alcohol foam, carbon dioxide (CO_2), dry chemical, water spray.

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

Hazardous Combustion Products: Oxides of nitrogen, oxides of sulfur (see also Hazardous Decomposition Products section)

Unusual Fire and Explosion Hazards: Solution contains a strong reducing agent. Dried product residue can act as a reducing agent.

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6. ACCIDENTAL RELEASE MEASURES

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: Avoid breathing mist. Avoid contact with eyes and prolonged or repeated contact with skin. Use 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.

Storage: Keep container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section).

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

ACGIH Threshold Limit Value (TLV):

Sodium bisulfite: 5 mg/m3 TWA

Ventilation: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions.

Respiratory Protection: None should be needed. A respirator should be worn if hazardous decomposition products are likely to be or have been released. Respirator type: Acid gas. See Stability and Reactivity Section. If respirators are used, a program should be instituted to assure compliance with OSHA Standard 29 CFR 1910.134.

Eye Protection: It is a good industrial hygiene practice to minimize eye contact. Wear safety glasses with side shields (or goggles).

Skin Protection: It is a good industrial hygiene practice to minimize skin contact. For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

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

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Liquid
Color: Light yellow
Odor: Odorless
Specific Gravity (water = 1): 1.17
Vapor Pressure at 20°C (68°F): 24 mbar (18 mm Hg)
Vapor Density (Air = 1): 0.6
Volatile Fraction by Weight: 80-85%
Boiling Point: >100°C (>212°F)
Solubility in Water: Complete
pH: 6.5
Flash Point: None

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10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: Strong oxidizing agents, bases, combustible material, halogenated materials, sodium hypochlorite (bleach).

Hazardous Decomposition Products: Ammonia, sulfur dioxide, chloramine

Hazardous Polymerization: Will not occur.

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11. TOXICOLOGICAL INFORMATION

Effects of Exposure:

Inhalation: 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.

Eyes: No specific hazard known. May cause transient irritation.

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. Some asthmatics or sulfite-sensitive

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individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

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12. ECOLOGICAL INFORMATION

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

Potential Toxicity

Fish LC50 mg/l:	> 100
Daphnid EC50 mg/l:	> 100
Algal IC50 mg/l:	> 100

Organics Readily Degradable (>70%):	Yes (7 days)
Potential Bioaccumulation:	Log Pow <1
COD (approximate g/l):	70
BOD5 (approximate g/l):	55
Potential Toxicity Waste treatment microorganisms EC50 (mg/l):	> 100

After dilution with a large amount of water, followed by secondary waste treatment, this material is not expected to cause adverse environmental effects.

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13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Flush to sewer with large amounts of water. Since emptied containers retain product residue, follow label warnings even after container is emptied.

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15. REGULATORY INFORMATION

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- 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): None
  - American Conference of Governmental Industrial Hygienists (ACGIH): None
  - 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

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40 CFR Part 372: Ammonium thiosulfate, as a source of aqueous ammonia.

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16. OTHER INFORMATION

US/Canadian Label Statements:

CONTAINS: Ammonium sulfite (010196-04-0), Sodium bisulfite (007631-90-5), Ammonium bisulfite (010192-30-0)

WARNING!
MAY BE HARMFUL IF SWALLOWED

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Avoid breathing mist.
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.

Keep out of reach of children.

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

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

IN CASE OF FIRE: Use water spray, carbon dioxide (CO_2), dry chemical, alcohol foam

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R-1, S-1, F-1, C-0