Safety Data Sheet

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

Product name: KODAK FLEXICOLOR SM Processing Unit F2/C-41SM Version 2.1

Product code: 1173319

Synonyms: None.

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

Supplier: Kodak Alaris Inc., 2400 Mount Read Boulevard, Rochester, NY 14615

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

For further information about this product, email EHS-Questions@Kodakalaris.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 (Target organs)
Acute toxicity	Category 4	Oral
Acute toxicity	Category 4	Dermal
Acute toxicity	Category 4	Inhalation - Vapours
Skin corrosion/irritation	Category 2	--
Serious eye damage/eye irritation	Category 2A	--
Target Organ Systemic Toxicant - Single exposure	Category 2	--
Target Organ Systemic Toxicant - Repeated exposure	Category 1	--

GHS-Labelling

Contains:
Ammonium thiosulphate (7783-18-8), Ammonium thiocyanate (1762-95-4), Ferric ammonium propylenediaminetetraacetic acid (111687-36-6), Ammonium nitrate (6484-52-2), Ammonium bromide (12124-97-9), Succinic acid (110-15-6), Sodium sulphite (7757-83-7)

Symbol(s):

Signal word: Danger

Hazard statements: Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause damage to organs. (Blood.) Causes damage to organs through prolonged or repeated exposure. (thyroid gland.)

Precautionary statements:

Prevention: Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response: Call a POISON CENTER or doctor/ physician if you feel unwell. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse. Rinse mouth.

Storage: Store in a well-ventilated place. Keep cool.

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.
Contact with acid liberates poisonous gas.

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

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

NOTE: HMIS III 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.)
10 - 15	Ammonium thiosulphate (7783-18-8)
10 - 15	Ammonium thiocyanate (1762-95-4)
1 - 5	Ferric ammonium propylenediaminetetraacetic acid (111687-36-6)
1 - 5	Ammonium nitrate (6484-52-2)
1 - 5	Ammonium bromide (12124-97-9)
1 - 5	Succinic acid (110-15-6)
1 - 5	Sodium sulphite (7757-83-7)
0.1 - < 1	Ammonium sulphite (10196-04-0)
0.1 - < 1	Sodium bisulphite (7631-90-5)

4. First aid measures

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

Eyes: 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.

Skin: IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Call a POISON CENTER or doctor/ physician if you feel unwell. Take off contaminated clothing and wash before reuse.

Ingestion: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Do NOT induce vomiting. Rinse mouth.

Most important symptoms and effects, both acute and delayed: No information available.

Indication of immediate medical attention and special treatment needed:

Treatment: Contact with a strong oxidizer or acid may liberate hydrogen cyanide gas. In the event that hydrogen cyanide gas is released, the local emergency ambulance/resuscitation service or physician should be informed that the patient may have been exposed to hydrogen cyanide gas.

5. Fire-fighting measures

Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Flush with plenty of water.

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 clothing. 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. Collect in a noncombustible container for prompt disposal.

Environmental precautions: Flush with plenty of water. Prevent spillage from entering drains. Absorb spill with vermiculite or other inert absorbant material such as sand or earth, then place in a suitable container for proper disposal. Clean surface thoroughly with water to remove residual contamination.

For Large Spills: Flush with plenty of water. Prevent spillage from entering drains. Absorb spill with vermiculite or other inert absorbant material such as sand or earth, then place in a suitable container for proper disposal. Clean surface thoroughly with water to remove residual contamination.

7. Handling and storage

Precautions for safe handling

Personal precautions: Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Use only outdoors or in a well-ventilated area. 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, highly oxygenated or halogenated solvents, organic compounds containing reducible functional groups. Remove and wash contaminated clothing promptly.

Conditions for safe storage, including any incompatibilities: Store in original container. Keep away from acids. Keep container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section.)

Cleaning Precautions: DO NOT add cleaning agents to processor tanks unless the tank and recirculation lines have been completely drained and thoroughly rinsed with water. The addition of concentrated cleaning agents, e.g. chlorine containing bleaches, to control biological growth or clean tanks may liberate hazardous gases. For information on the recommended methods for cleaning processing tanks, contact the Kodak Customer Assistance Center at (800) 242-2424. For information on controlling biological growth, request a copy of the KODAK Publication CIS-3, Biocides for Photographic Solution Tanks and Wash Water.

8. Exposure controls/personal protection

Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Ammonium thiocyanate	OSHA	time weighted average	5 mg/m3 *Expressed as CN* *prevent or reduce skin absorption*
Ferric ammonium propylenediaminetetraacetic acid	ACGIH	time weighted average	1 mg/m3 *Expressed as Fe*

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: None should be needed under normal conditions of use. However in the unlikely event that hazardous decomposition products are released, emergency response personnel must wear a full-face positive-pressure air supplied respirator. 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 applicable federal, state, commonwealth, provincial, or local laws and regulations.

9. Physical and chemical properties

Physical form: liquid

Colour: no data available

Odour: no data available

Specific gravity: no data available

Vapour pressure: no data available

Vapour density: no data available

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

Water solubility: no data available

pH: no data available

Flash point: does not flash

Evaporation rate: no data available

Flammability (Solid; gas): no data available

Upper explosion limit: no data available

Lower explosion limit: no data available

Partition coefficient: n-octanol/water: no data available

Autoignition temperature: no data available

Decomposition temperature: no data available

Viscosity: no data available

Explosive properties: no data available

Oxidizing properties: no data available

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, sulfuric acid. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas). Contact with strong oxidizing agents e.g. sodium hypochlorite (bleach) or strong acids may liberate cyanides or carbonyl sulphide. Contact with strong oxidizing agents or acids liberates toxic and flammable gas. Contact with base liberates flammable material. Contact with base liberates ammonia. Contact with strong acids liberates sulphur dioxide.

Hazardous decomposition products: nitrogen oxides (NOx), Sulphur oxides, Ammonia, chloramine, carbonyl sulfide, cyanides

11. Toxicological information

Effects of Exposure

General advice:

Contains: Ammonium thiocyanate. Overexposure to thiocyanates has been shown to cause thyroid enlargement, decrease in metabolic rate, and symptoms of hypothyroidism in humans and animals.

Contains: Ferric ammonium propylenediaminetetraacetic acid. This compound can chelate metals and may alter calcium and other cation balances.

Contains: Ammonium nitrate. Under some circumstances methemoglobinemia may occur when nitrates are converted by bacteria in the stomach to nitrites. May cause blood disorders based on animal data.

Contains: Ammonium bromide. Ingestion of bromide salts can cause nausea, vomiting, headache, irritability, delirium, memory loss, decreased appetite, joint pain, hallucinations, stupor, coma, and acne like rash on face, legs, and trunk.

Inhalation: Harmful if inhaled. 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. If hydrogen cyanide gas is liberated due to contact with a strong oxidizer or acid, it may cause dizziness, headache, rapid respiration, rapid pulse, unconsciousness, convulsions and death.

Eyes: Causes serious eye irritation.

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

Ingestion: 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.

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

Acute Toxicity Data:
Oral LD50 (male rat): 500 - 5,000 mg/kg

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

Data for Ammonium thiocyanate (CAS 1762-95-4):

Acute Toxicity Data:
Oral LD50 (male rat): 500 - 1,000 mg/kg

- Dermal LD50 (guinea pig): 0.25 - 0.5 g/kg
- Skin irritation: moderate
- Eye irritation (unwashed eyes): moderate

Data for Ferric ammonium propylenediaminetetraacetic acid (CAS 111687-36-6):

Acute Toxicity Data:
Oral LD50 (male rat): 2,828 mg/kg

- Oral LD50 (female rat): 4,000 mg/kg
- Skin irritation: slight
- Skin Sensitization: none
- Eye irritation (unwashed eyes): slight
- Eye irritation (washed eyes): none

Mutagenicity/Genotoxicity Data:

- Salmonella-E. coli/Mammalian-Microsome Reverse Mutation Assay (TA1535, TA1537, TA1538, TA98, TA100): negative (in presence and absence of activation)
- CHO/HGPRT assay: positive (in presence of activation)
- CHO/HGPRT assay: negative (in absence of activation)
- Mouse lymphoma assay: negative (in presence and absence of activation)

Data for Ammonium nitrate (CAS 6484-52-2):

Acute Toxicity Data:
Oral LD50 (rat): 2,217 mg/kg

- Inhalation LC50 (rat): > 88.8 mg/l / 4 hr

Data for Ammonium bromide (CAS 12124-97-9):

Acute Toxicity Data:

- Dermal LD50 (rat): > 2,000 mg/kg

- Skin irritation: irritating
- Skin Sensitization: none
- Eye irritation: Irritating to eyes.

Data for Succinic acid (CAS 110-15-6):

Acute Toxicity Data:
Oral LD50 (rat): 2,260 mg/kg

- Eye irritation: severe

Data for Sodium sulphite (CAS 7757-83-7):

Acute Toxicity Data:
Oral LD50 (rat): 820 mg/kg

- Inhalation LC50 (rat): > 5.5 mg/l / 4 hr
- Inhalation LC50 (rat): > 22 mg/l / 1 hr
- Skin irritation: none
- Eye irritation: slight; washing palliative

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 Sodium bisulphite (CAS 7631-90-5):

Acute Toxicity Data:
Oral LD50 (rat): > 1,600 mg/kg

- Dermal LD50 (rat): 2,000 mg/kg
- Eye irritation (May irritate eyes.): mild

12. Ecological information

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

Potential Toxicity:

Toxicity to fish (LC50):	> 100 mg/l
Toxicity to daphnia (EC50):	> 100 mg/l

Persistence and degradability: Not readily biodegradable.

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	Not all listed
DSL	All listed
NDSL	None listed
EINECS	Not all listed
ELINCS	None listed
NLP	None listed
AICS	All listed
IECS	All listed
ENCS	Not all listed
ECI	Not all listed
NZIoC	All listed
PICCS	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

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):	Group 2A - Probably Carcinogenic to Humans: Ammonium nitrate
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):	OSHA Carcinogen or Potential Carcinogen: Ammonium nitrate
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.
U.S. - CERCLA/SARA (40 CFR § 302.4 Designation of hazardous substances):	Ammonium thiocyanate
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 thiocyanate , Ferric ammonium propylenediaminetetraacetic acid , Ammonium nitrate , Ammonium bromide
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Ammonium thiocyanate , Ferric ammonium propylenediaminetetraacetic 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 thiocyanate , Ammonium nitrate , Ammonium bromide
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Ferric ammonium propylenediaminetetraacetic acid
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Ammonium thiocyanate , Ammonium nitrate
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):	Water , Ammonium thiosulphate , Ammonium thiocyanate , Ferric ammonium propylenediaminetetraacetic acid , Ammonium nitrate , Ammonium bromide , Ammonium sulphite , Sodium bisulphite

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 FLEXICOLOR SM Processing Unit F2/C-41SM Version 2.1

Contains:
Ammonium thiosulphate (7783-18-8), Ammonium thiocyanate (1762-95-4), Ferric ammonium propylenediaminetetraacetic acid (111687-36-6), Ammonium nitrate (6484-52-2), Ammonium bromide (12124-97-9), Succinic acid (110-15-6), Sodium sulphite (7757-83-7)

Symbol(s):

Signal word: Danger

Hazard statements: Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause damage to organs. (Blood.) Causes damage to organs through prolonged or repeated exposure. (thyroid gland.)

Precautionary statements:

Prevention: Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response: Call a POISON CENTER or doctor/ physician if you feel unwell. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse. Rinse mouth.

Storage: Store in a well-ventilated place. Keep cool.

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

FIRST AID: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. 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 ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Call a POISON CENTER or doctor/ physician if you feel unwell. Take off contaminated clothing and wash before reuse. IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Do NOT induce vomiting. Rinse mouth. **Note to Physicians:** Contact with a strong oxidizer or acid may liberate hydrogen cyanide gas. In the event that hydrogen cyanide gas is released, the local emergency ambulance/resuscitation service or physician should be informed that the patient may have been exposed to hydrogen cyanide gas. Keep out of reach of children. Do not handle or use until safety precautions in Material Safety Data Sheet (MSDS) have been read and understood. Since emptied containers retain product residue, follow label warnings even after container is emptied. **IN CASE OF FIRE:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Flush with plenty of water. **IN CASE OF SPILL:** Absorb spill with vermiculite or other inert material. Collect in a noncombustible container for prompt disposal. For Large Spills: Flush with plenty of water. Prevent spillage from entering drains. Absorb spill with vermiculite or other inert absorbant material such as sand or earth, then place in a suitable container for proper disposal. Clean surface thoroughly with water to remove residual contamination. Additional Components Include: Water (7732-18-5) .

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