Kodak alaris

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

Product name: Kodafix Solution

Product code: 5160460

Synonyms: PCD 5385

Relevant identified uses of the substance or mixture and uses advised against:
Identified uses: photographic processing chemical (fixer). 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
Acute toxicity	Category 4	Oral
Skin corrosion/irritation	Category 2	--
Serious eye damage/eye irritation	Category 2A	--
Respiratory sensitisation	Category 1	--
Reproductive toxicity	Category 1B	--

GHS-Labelling

Contains:
Ammonium thiosulphate (7783-18-8), Sodium bisulphite (7631-90-5), Acetic acid (64-19-7), Boric acid (10043-35-3), Ammonium sulphite (10196-04-0), Aluminium sulphate (10043-01-3)

Symbol(s):

Signal word: Danger

Hazard statements: Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May damage fertility or the unborn child.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. In case of inadequate ventilation wear respiratory protection. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response: IF exposed or concerned: Get medical advice/ attention. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician. IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. 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.

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

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

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.)
30 - 35	Ammonium thiosulphate (7783-18-8)
1 - 5	Sodium acetate (127-09-3)
1 - 5	Sodium bisulphite (7631-90-5)
1 - 5	Ammonium sulphite (10196-04-0)

1 - < 5	Acetic acid (64-19-7)
1 - 5	Boric acid (10043-35-3)
1 - 5	Aluminium sulphate (10043-01-3)

4. First aid measures

Inhalation: If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. If easy to do, remove contact lens, if worn.

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 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. Call a physician or poison control centre immediately.

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

Indication of any immediate medical attention and special treatment needed:

Treatment: No information available.

5. Firefighting 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, Nitrogen oxides (NOx), Sulphur oxides, (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. Clean surface thoroughly to remove residual contamination.

Environmental precautions: Flush with plenty of water.

For Large Spills: Flush with plenty of water.

7. Handling and storage

Precautions for safe handling

Personal precautions: Avoid breathing mist or vapour at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. 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, 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 container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls/personal protection

Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Sodium bisulphite	ACGIH	Time weighted average	5 mg/m3
Acetic acid		Time weighted average	10 ppm
		Short term exposure limit	15 ppm
	OSHA	Time weighted average	10 ppm 25 mg/m3
Boric acid	ACGIH	Time weighted average	2 mg/m3
			Form of exposure: inhalable fraction
		Short term exposure limit	6 mg/m3
			Form of exposure: inhalable fraction
Sulphur dioxide		Short term exposure limit	0.25 ppm
	OSHA	Time weighted average	5 ppm 13 mg/m3

Appropriate engineering controls: 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.

Individual protection measures, such as personal protective equipment

Eye protection: If a full-face respirator is not worn, wear vapour-tight chemical goggle and a face shield.

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

Respiratory protection: None should be needed. If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: full-face organic vapour cartridge. A respirator must 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: colourless

Odour: ammonia

Specific gravity: 1.28

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

Vapour density: 0.6

Boiling point/boiling range: > 100.0 °C (> 212.0 °F)

Water solubility: complete

pH: 4.9

Flash point: None.

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

Auto-ignition 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. Contact with strong acids liberates sulphur dioxide. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas). Contact with base liberates flammable material. Contact with base liberates ammonia.

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

11. Toxicological information

Effects of Exposure

General advice:

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.

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

Contains: Aluminium sulphate. Ingestion may cause nausea, vomiting, abdominal pains, and diarrhea.

Inhalation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Eyes: Causes serious eye irritation.

Skin: Causes skin irritation.

Ingestion: Harmful if swallowed. Suspected of damaging fertility or the unborn child if swallowed. 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

- Oral LD50 (Rat): 1,950 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 Sodium bisulphite (CAS 7631-90-5):

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

- Oral LD50 (Rat): 1,310 mg/kg
- Dermal LD50 (Rat): 2,000 mg/kg

- Eye irritation (May irritate eyes.): mild

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

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

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

- Oral LD50 (Rat): 2,660 mg/kg
- Inhalation LC50 (Rat): > 2.03 mg/l / 4 hr
- Dermal LD50 (Rabbit): > 2,000 mg/kg
- Skin irritation: moderate
- Skin Sensitization (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 Aluminium sulphate (CAS 10043-01-3):

Acute Toxicity Data:

Oral LD50 (Mouse): 6,207 mg/kg

- Oral LD50 (Rat): 1,930 mg/kg
- Skin irritation: No skin irritation
- Eye irritation: severe

Mutagenicity/Genotoxicity Data:

- Cell transformation assay: negative

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.
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.
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. 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

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

12. Ecological information

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

Potential Toxicity:

Toxicity to fish:	> 100 mg/l
Toxicity to daphnia:	> 100 mg/l
Toxicity to other organisms:	> 100 mg/l

Persistence and degradability: Readily biodegradable

Chemical Oxygen Demand (COD): ca. 247 g/l

Biochemical Oxygen Demand (BOD): ca. 199 g/l

Not expected to adversely effect aquatic organisms.

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

"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):	Sodium bisulphite , Ammonium sulphite , Acetic acid , Aluminium sulphate
U.S. - CERCLA/SARA - Section 313 (40 CFR § 372.65 Toxic Chemical Release Reporting):	Ammonium thiosulphate , Ammonium sulphite
U.S. - CERCLA/SARA - Section 302 (40 CFR § 355 Appendices A and B - The List of Extremely Hazardous Substances and Their Threshold Planning Quantities):	Sulphur dioxide
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. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Sodium bisulphite , Ammonium sulphite , Acetic acid , Aluminium sulphate , Sulphur dioxide
U.S. - Massachusetts - General Law Chapter 111F (MGL c 111F) - Hazardous Substances Disclosure by Employers (a.k.a. Right to Know Law):	Ammonium thiosulphate , Sodium bisulphite , Ammonium sulphite , Acetic acid , Aluminium sulphate , Sulphur dioxide
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Sodium bisulphite , Acetic acid , Aluminium sulphate , Sulphur dioxide
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Sodium bisulphite , Ammonium sulphite , Acetic acid , Boric acid , Aluminium sulphate , Sulphur dioxide
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance List, Appendix A):	Water , Ammonium thiosulphate , Sodium acetate , Sodium bisulphite , Ammonium sulphite , Acetic acid , Aluminium sulphate , Sulphur dioxide

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:

Kodafix Solution

Contains:
Ammonium thiosulphate (7783-18-8), Sodium bisulphite (7631-90-5), Acetic acid (64-19-7), Boric acid (10043-35-3), Ammonium sulphite (10196-04-0), Aluminium sulphate (10043-01-3)

Symbol(s):

Signal word: Danger

Hazard statements: Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May damage fertility or the unborn child.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. In case of inadequate ventilation wear respiratory protection. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response: IF exposed or concerned: Get medical advice/ attention. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician. IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. 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 to fresh air. Get medical attention if symptoms occur. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. If easy to do, remove contact lens, if worn. 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 re-use. Destroy or thoroughly clean contaminated shoes. 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 centre immediately. 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. Clean surface thoroughly to remove residual contamination. For Large Spills: 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-1, S-2, F-1, C-1

Kodak alaris

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

Product name: Kodafix Solution, Working Solution

Product code: 5160460 - Working Solution

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
Respiratory sensitisation	Category 1	--
Reproductive toxicity	Category 1B	--

GHS-Labelling

Contains:
Boric acid (10043-35-3), Acetic acid (64-19-7)

Symbol(s):

Signal word: Danger

Hazard statements: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May damage fertility or the unborn child.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. In case of inadequate ventilation wear respiratory protection. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Response: IF exposed or concerned: Get medical advice/ attention. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

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 III Hazard Ratings: Health - 1*, Flammability - 1, Physical Hazard - 0

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

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.)
5 - < 10	Ammonium thiosulphate (7783-18-8)
0.1 - < 1	Acetic acid (64-19-7)
0.1 - < 1	Boric acid (10043-35-3)

4. First aid measures

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

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

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

Ingestion: Get medical attention if symptoms occur.

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

Indication of any immediate medical attention and special treatment needed:

Treatment: No information available.

5. Firefighting 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, Nitrogen oxides (NOx), Sulphur oxides, (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. Clean surface thoroughly to remove residual contamination.

Environmental precautions: Flush with plenty of water.

For Large Spills: Flush with plenty of water.

7. Handling and storage

Precautions for safe handling

Personal precautions: Avoid breathing mist or vapour at concentrations greater than the exposure limits. Avoid contact with eyes, skin, and clothing. 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, 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 container tightly closed to prevent the loss of water. Keep away from incompatible substances (see Incompatibility section.)

8. Exposure controls/personal protection

Occupational exposure controls: Not established

Appropriate engineering controls: 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.

Individual protection measures, such as personal protective equipment

Eye protection: If a full-face respirator is not worn, wear vapour-tight chemical goggle and a face shield.

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

Respiratory protection: None should be needed. If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: full-face organic vapour cartridge. A respirator must 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

Particle size: No data available

Colour: No data available

Odour: No data available

Specific gravity: 1.06 - 1.08

Vapour pressure: 24 mbar (24 mbar)

Vapour density: 0.6

Boiling point/boiling range: No data available

Melting point/range: No data available

Water solubility: complete

pH: 4.9 - 5.5

Flash point: No data available

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

Auto-ignition 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. Contact with strong acids liberates sulphur dioxide. Contact with sodium hypochlorite (bleach) may form chloramine (toxic gas). Contact with base liberates flammable material. Contact with base liberates ammonia.

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

11. Toxicological information

Effects of Exposure

General advice:

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.

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

Inhalation: May cause allergy or asthma symptoms or breathing difficulties 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.

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

Skin: Expected to be a low hazard for recommended handling. 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. 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

- Oral LD50 (Rat): 1,950 mg/kg
- Inhalation (Rat): 2260 mg/m3 / 4 hr
- Eye irritation: none

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

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

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

- Oral LD50 (Rat): 2,660 mg/kg
- Inhalation LC50 (Rat): > 2.03 mg/l / 4 hr
- Dermal LD50 (Rabbit): > 2,000 mg/kg
- Skin irritation: moderate
- Skin Sensitization (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

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.
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.
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. 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:	> 100 mg/l
Toxicity to daphnia:	> 100 mg/l

Persistence and degradability: 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	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

"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):	No components of this product are subject to the SARA Section 302 (40 CFR 302.4) reporting requirements.
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
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	No components found on the California Director's List of Hazardous Substances.
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
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	No components found on the Minnesota Employee Right-to-Know List of Hazardous Substances.
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	No components regulated under the New Jersey Worker and Community Right-to-Know Act.
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapter 323 Hazardous Substance	Water , Ammonium thiosulphate , Sodium bisulphite , Ammonium

List, Appendix A): sulphite , Acetic acid , Aluminium sulphate

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:

Kodafix Solution, Working Solution

Contains:
Boric acid (10043-35-3), Acetic acid (64-19-7)

Symbol(s):

Signal word: Danger

Hazard statements: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May damage fertility or the unborn child.

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. In case of inadequate ventilation wear respiratory protection. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Response: IF exposed or concerned: Get medical advice/ attention. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

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. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician. Any

material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur. Wash off with soap and water. Get medical attention if symptoms occur. Get medical attention if symptoms occur. 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. Clean surface thoroughly to remove residual contamination. For Large Spills: Flush with plenty of water.

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