Material Safety Data Sheet

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

Product name: PYRIDINE-1-OXIDE

Product code: 10008282

Supplier: EASTMAN KODAK COMPANY, 343 State Street, Rochester, New York 14650

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

For further information about this product, call (800) 242-2424.

Synonyms: None.

Product Use: Film or paper manufacturing chemical, For industrial use only.

2. Hazards identification

CONTAINS: Pyridine, 1-oxide (694-59-7)

WARNING!
FLAMMABLE SOLID
CAN DECOMPOSE VIOLENTLY AT ELEVATED TEMPERATURES
POWDERED MATERIAL MAY FORM EXPLOSIVE DUST-AIR MIXTURES
HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED
CAUSES SKIN AND EYE IRRITATION
DUST IRRITATING TO THE EYES AND RESPIRATORY TRACT
CAN CAUSE CNS EFFECTS
CAN CAUSE LIVER AND KIDNEY DAMAGE
MAY CAUSE BONE MARROW DAMAGE BASED ON ANIMAL DATA
THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN INVESTIGATED
HEALTH HAZARD EVALUATION BASED ON A STRUCTURALLY SIMILAR MATERIAL

HMIS III Hazard Ratings: Health - 3*, 2, Flammability - 1, 1, Reactivity (Stability) - 10

NFPA Hazard Ratings: Health - 4, 2, Flammability - 1, 1, Instability - 20

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 %	Components - (CAS-No.)
95 - 100	Pyridine, 1-oxide (694-59-7)

4. First aid measures

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

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

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.

Ingestion: If swallowed, do NOT induce vomiting. Give victim a glass of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5. Fire-fighting measures

Extinguishing Media: Water spray, Carbon dioxide (CO2), Dry chemical. Use water spray to cool unopened containers.

Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products. Fight fire from a protected location. Water may be ineffective.

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

Unusual Fire and Explosion Hazards: Flammable solid. Can be ignited easily and burns vigorously. Fire or high temperatures may cause decomposition. Dust may form explosive mixture in air.

6. Accidental release measures

Remove all sources of ignition. Shovel into suitable container for disposal. Avoid dust formation. Prevent runoff from entering drains, sewers, or streams.

7. Handling and storage

Personal precautions: Do not breathe dust. Keep container tightly closed. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling.

Prevention of Fire and Explosion: Keep away from open flames, hot surfaces and sources of ignition. Exercise caution if heating, especially in a closed container. Dust may form explosive mixture in air. Minimize dust generation and accumulation. Use only with adequate ventilation. Refer to NFPA 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids." Keep from contact with oxidizing materials.

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

8. Exposure controls/personal protection

Occupational exposure controls: Not established

Ventilation: Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels to an acceptable level.

Respiratory protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, an approved respirator must be worn. Respirator type: organic vapour/N95. If respirators are used, a program should be instituted to assure compliance with applicable federal, state, commonwealth, provincial, or local laws and regulations.

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

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

9. Physical and chemical properties

Physical form: solid (crystalline)

Colour: yellow

Odour: characteristic

Specific gravity: 1.16

Vapour pressure (at 102.0 °C (215.6 °F)) : 1.3 mbar (1.0 mm Hg)

Vapour density: no data available

Volatile fraction by weight: no data available

Boiling point/boiling range: 270 °C (518.0 °F)

Melting point/range: 65 °C (149.0 °F)

Water solubility: soluble (> 1,000 g/l at 20 °C)

pH: not applicable 3 - 5

Partition coefficient: n-octanol/water log Pow = -1.20

Flash point: 143 °C (289.4 °F)

10. Stability and reactivity

Stability: Stable under normal conditions. Safe handling temperatures are dependent on specific conditions of use and are typically substantially below the onset temperature. Consult your technical safety experts.

Exotherm onset temperature: 224 °C by DSC

Incompatibility: Strong acids, Bases, Oxidizing agents, Water.

Hazardous decomposition products: nitrogen oxides (NOx), hydrogen cyanide

Hazardous Polymerization: Hazardous polymerisation does not occur.

11. Toxicological information

Effects of Exposure

General advice: Health hazard evaluation based on a structurally similar material. Can cause CNS effects. Can cause liver damage. Can cause kidney damage. May cause bone marrow damage based on animal data.

Inhalation: Harmful if inhaled. Irritating to respiratory system.

Eyes: Causes eye irritation. Airborne dust irritating.

Skin: Harmful if absorbed through skin. Causes skin irritation.

Ingestion: Harmful if swallowed.

Acute Toxicity Data:

- Skin irritation: Irritating to skin. (Irritating to mucous membranes)
- Eye irritation: Irritating to eyes.

Data for Pyridine (CAS 110-86-1):

Acute Toxicity Data:
Oral LD50 (rat): 800 - 1,600 mg/kg (10% in water)

- Oral LD50 (mouse): 800 - 1,600 mg/kg (10% in water)
- Oral LD50 (rat): 891 mg/kg
- Oral LD50 (mouse): 1,500 mg/kg
- Inhalation LC50 (rat): < 11.88 mg/l < 3670 ppm / 6 hr
- Inhalation LC50 (rat): 28500 MG/M3 / 1 hr
- Dermal LD50 (guinea pig): 1 GM/KG
- Dermal LD50 (rabbit): 1,121 mg/kg
- Skin irritation: Mild skin irritation
- Skin Sensitization (guinea pig): negative

12. Ecological information

Data for this substance have been used to estimate its environmental impact.

Potential Toxicity:

Toxicity to fish (LC50):	>100 (Exposure time: 96 hr)
Toxicity to daphnia (EC50):	>100 (Exposure time: 48 hr)
Toxicity to algae (EC50):	>100 (Exposure time: 96 hr)

Persistence and degradability: Not readily biodegradable.

This material is not expected to be harmful to aquatic life.

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	Not all listed
NDSL	Listed
EINECS	All listed
ELINCS	None listed
NLP	None listed
AICS	All listed
IECS	Not all listed
ENCS	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):	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. 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):	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, or any other reproductive defects.
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):	No components of this product are subject to the SARA Section 313 (40 CFR 372.65) reporting requirements.
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):	No components regulated under the Massachusetts Hazardous Substances Disclosure by Employers Law.
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 (Chapters 301-323):	Pyridine, 1-oxide
U.S. - Rhode Island - Title 28 Labor and Labor Relations (Chapters 28-21 Hazardous Substance Right-to-Know Act):	No components regulated under the Rhode Island Hazardous Substance Right-to-Know Act.

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:

PYRIDINE-1-OXIDE
CONTAINS: Pyridine, 1-oxide (694-59-7).
WARNING! FLAMMABLE SOLID. CAN DECOMPOSE VIOLENTLY AT ELEVATED TEMPERATURES. POWDERED MATERIAL MAY FORM EXPLOSIVE DUST-AIR MIXTURES. HARMFUL IF INHALED, ABSORBED THROUGH SKIN, OR SWALLOWED. CAUSES SKIN AND EYE IRRITATION. DUST IRRITATING TO THE EYES AND RESPIRATORY TRACT. CAN CAUSE CNS EFFECTS. CAN CAUSE LIVER AND KIDNEY DAMAGE. MAY CAUSE BONE MARROW DAMAGE BASED ON ANIMAL DATA. THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN INVESTIGATED. HEALTH HAZARD EVALUATION BASED ON A STRUCTURALLY SIMILAR MATERIAL.
Keep away from open flames, hot surfaces and sources of ignition. Exercise caution if heating, especially in a closed container. Keep container tightly closed. Minimize dust generation and accumulation. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. **FIRST AID:** If inhaled, remove to fresh air. Get medical attention. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. 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, do NOT induce vomiting. Give victim a glass of water. Never give anything by mouth to an unconscious person. Get medical attention 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:** Water spray, Carbon dioxide (CO2), Dry chemical. Use water spray to cool unopened containers. **IN CASE OF SPILL:** Remove all sources of ignition. Shovel into suitable container for disposal. Avoid dust formation. Prevent runoff from entering drains, sewers, or streams.

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.
