Product Safety Assessment

UCAR™ Ester EEP

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Names

- CAS No. 763-69-9
- UCAR™ Ester EEP
- EEP
- Ethyl 3-ethoxypropionate
- EC No. 212-112-9
- 3-Ethoxypropionic acid ethyl ester
- Ethyl 3-ethoxypropionate

Product Overview

- UCAR™ Ester EEP is manufactured by The Dow Chemical Company. It is an ether-ester solvent with a slow evaporation rate, and it is not listed as a Hazardous Air Pollutant (HAP) by the United States Environmental Protection Agency (U.S. EPA). It is a clear, colorless liquid with a mild odor. It has a linear structure with low surface tension, high electrical resistance, and low solution viscosity. Because of these characteristics, UCAR Ester EEP is a good solvent for a wide range of polymers. For further details, see Product Description.
- UCAR Ester EEP is mainly used as a solvent in high-solids coatings applications. It is also used as a solvent in conventional lacquer and enamel formulations. For further details, see Product Uses.
- Eye contact with UCAR Ester EEP may cause slight temporary irritation, although corneal injury is unlikely. Brief contact may cause slight skin irritation; however, prolonged skin contact may burn the skin, but is not likely to result in absorption of harmful amounts. Prolonged inhalation is not expected to cause adverse effects. For further details, see Health Information or Physical Hazard Information.
- Worker exposure to this material is possible during manufacturing or downstream formulation or painting/coating operations. Engineering controls and the use of personal-protection equipment greatly reduce the potential for occupational exposure. This material is not sold for direct consumer use. However, it is used in household maintenance products. For further details, see Exposure Potential.
- UCAR Ester EEP liquid and vapor are combustible. The vapor is heavier than air, and can travel long distances and accumulate in low-lying areas, creating an explosion or flashback hazard. Minimize ignition sources such as static build-up, heat, spark, or flame. Avoid contact with acids, strong bases, and strong oxidizers. For further details, see Physical Hazard Information.
UCAR™ Ester EEP is readily biodegradable, unlikely to accumulate in the food chain, and is slightly toxic to fish and other aquatic organisms on an acute basis. For further details, see Environmental Information.

Manufacture of Product
- **Capacity** – UCAR™ Ester EEP is manufactured at facilities in Texas (USA).
- **Process** – UCAR Ester EEP is manufactured in a closed, continuous process. The ethyl 3-ethoxypropionate is made from ethylene and synthesis gas in a variation of the LP Oxo Technology OXO process.

Product Description
UCAR™ Ester EEP is the trade name for ethyl 3-ethoxypropionate produced by Dow. It is a clear, colorless liquid with a mild odor. It is a slow-evaporating ether-ester solvent. It has a linear structure with low surface tension and low solution viscosity. It is a good solvent for a wide range of polymers and has high electrical resistivity, making it useful for electrostatically sprayed coatings. Ethyl 3-ethoxypropionate is not listed as a Hazardous Air Pollutant (HAP) solvent by the U.S. Environmental Protection Agency, Clean Air Act Title III, and is characterized as having reduced ozone formation potential; UCAR Ester EEP is not expected to contribute to lower-level smog formation.

Product Uses
UCAR™ Ester EEP is used for the following applications
- Coil coatings
- General industrial and architectural coatings
- Printing inks and ink cleaner systems
- Laboratory chemical suppliers
- Industrial janitorial cleaning products

As a non-Hazardous Air Pollutant solvent, UCAR Ester EEP is an excellent replacement solvent for ethylene glycol monoethyl ether acetate (EE acetate).

Exposure Potential
UCAR™ Ester EEP is used in the production of industrial and consumer products. Based on the uses for this material, the public could be exposed through:
- **Workplace exposure** – Exposure can occur either in a UCAR Ester EEP manufacturing facility or in the various industrial or manufacturing facilities that use this material as a solvent. It is produced, distributed, and stored in closed systems. Those working with this material in manufacturing, downstream formulation or painting/coating operations could be exposed during maintenance, sampling, testing, or other procedures. Each facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit unnecessary exposure. See Health Information.

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• Consumer exposure to products containing UCAR™ Ester EEP – Dow does not sell this material for direct consumer use. However, it is used in household maintenance products such as: adhesive removers, brush cleaners, liquid and aerosol enamel paints and primers as well as in aftermarket automotive spray enamels. Always read the product information before use and follow the label/use instructions. See Health Information.

• Environmental releases – In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Eliminate all sources of ignition. This material is moderately soluble in water and has low volatility. Once introduced to water, the material will have a tendency to remain in water. However, because UCAR™ Ester EEP is readily biodegradable, the compound will be removed by wastewater treatment plants. See Environmental, Health, and Physical Hazard Information.

• Large release – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, dike the area to contain the spill. If available, use foam to smother or suppress vapors. Ground and bond all containers and handling equipment. Pump recovered material with explosion-proof equipment. Collect in suitable and properly labeled containers. See Environmental, Health, and Physical Hazard Information.

• In case of fire – Evacuate personnel upwind, out of low areas. Vapors are heavier than air and can travel long distances. Ignition or flashback could occur. Eliminate ignition sources. Extinguish fires with water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam. Use of a direct water stream may spread the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, see the relevant Safety Data Sheet.

Health Information

Eye contact – Eye contact with this material may cause slight temporary irritation. Corneal injury is unlikely. Vapor or mist may cause irritation.

Skin contact – Brief skin contact with this material may cause slight irritation with local redness. Prolonged skin contact may burn the skin, but is not likely to result in absorption of harmful amounts. Symptoms may include pain, severe local redness, swelling, and tissue damage. Drying and flaking of the skin are also possible.

Inhalation – Prolonged inhalation is not expected to cause adverse effects.

Ingestion – This material has very low toxicity if swallowed. Harmful effects are not anticipated from swallowing small amounts. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Other – Based on available data, repeated exposures are not anticipated to cause significant adverse effects. UCAR™ Ester EEP when tested in animals has been toxic to the fetus at doses toxic to the mother but did not cause birth defects. In vitro genetic toxicity studies were negative.

For more information, see the relevant Safety Data Sheet.
Environmental Information

UCAR™ Ester EEP has low volatility and is moderately soluble in water. When introduced to water the chemical will have a tendency to remain in water. It has minimal tendency to bind to soil or sediment.

UCAR Ester EEP is unlikely to persist in the environment. The compound is readily biodegradable, which suggests it will be rapidly and completely removed from water and soil environments, including biological wastewater treatment plants.

UCAR Ester EEP has a low potential to accumulate in the food chain and is slightly toxic to fish and other aquatic organisms on an acute basis.

For more information, see the relevant Safety Data Sheet.

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Physical Hazard Information

UCAR™ Ester EEP liquid and vapor are combustible. The vapor is heavier than air and can travel long distances and accumulate in low-lying areas, creating an explosion or flashback hazard. Minimize exposure to ignition sources such as static build-up, heat, spark, or flame. This material is thermally stable at typical storage and use temperatures. Exposure to elevated temperatures can cause UCAR Ester EEP to decompose.

Avoid contact with acids, strong bases, and strong oxidizers.

For more information, see the relevant Safety Data Sheet.

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Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of UCAR™ Ester EEP. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Data Sheet, or Contact Us.

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Additional Information

- Safety Data Sheet (http://www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (http://www.dow.com/oxysolvents/contact/index.htm)
- UCAR™ Ester EEP, Technical Data Sheet, The Dow Chemical Company, Form No. 327-00008-0812 (http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_08ac/0901b803808aca5c.pdf?filepath=oxysolvents/pdfs/noreg/327-00008.pdf&fromPage=GetDoc)

References
1 UCAR™ Ester EEP, Technical Data Sheet, The Dow Chemical Company, Form No. 327-00008-0812
2 UCAR Ester EEP Safety Data Sheet for the US, The Dow Chemical Company, ID No. 981/1001
3 U.S. Department of Health and Human Services Household Products Database: Ethyl-3-ethoxy propionate.
6 Estimate by The Dow Chemical Company
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