LANXESS
Energizing Chemistry

Epoxidized soybean oil

This document provides a brief description of epoxidized soybean oil, its uses, and the potential hazards associated with short and long term exposure. Environmental impact information for accidental releases is included. This information is general in nature and is not intended as a replacement for the safety data sheet (SDS), product label and other safe handling literature. For additional information consult the LANXESS safety data sheet.

Identification

Product Name:	Epoxidized soybean oil
Chemical Name:	Epoxidized soybean oil
Synonym(s):	ESBO Soy oil, epoxidized
CAS Number:	8013-07-8

Description

Overview:	Epoxidized soybean oil is a pale yellow, viscous liquid at ambient temperatures. The chemical has a mild vegetable odor.	
Uses:	Epoxidized soybean oil is primarily used as an additive (plasticizer or stabilizer) in the manufacture of plastics, adhesives and coatings. The chemical is also used as an inert ingredient in agricultural pesticides (provides equipment corrosion protection), as a process regulator in the manufacture of other chemicals and as an industrial lubricant.	
Properties:	**Melting Point:**	5°F (-15°C)
	Flash Point:	Approx. 600.8°F (316°C)
	Solubility in Water:	Insoluble

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure exists during manufacture, at storage and staging areas, in sampling and filter cleaning operations and during the application of pesticides manufactured using the chemical as an ingredient. A much lower potential for exposure exists in facilities using the chemical in closed manufacturing processes by trained personnel.

Employee Training

Workers handling epoxidized soybean oil should be trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. A NIOSH approved air-purifying respirator with organic vapor cartridge is recommended for operations where the chemical is heated to decomposition and not contained within a closed system. In addition, LANXESS recommends that safety glasses, long pants, long-sleeved shirts, permeation resistant gloves and foot protection be worn when handling epoxidized soybean oil.

Consumer Exposure

LANXESS Corporation does not sell this chemical to the general public. Consumers may be exposed to trace amounts of epoxidized soybean through ingestion of food products stored in containers with PVC cap seals.

Short-Term Health Effects

Contact with epoxidized soybean oil may cause mild eye irritation. Heated epoxidized soybean oil may cause thermal burns. Inhalation of mists or vapors may cause respiratory tract irritation and central nervous system effects with symptoms of coughing, breathing difficulty, headache, dizziness, drowsiness, nausea, vomiting and/or lack of coordination. Ingestion of epoxidized soybean oil in sufficient quantities may cause gastrointestinal discomfort and may have a laxative effect. Severe cases of overexposure may result in coma or respiratory failure.

Long-Term Health Effects

Prolonged skin contact may cause mild irritation or dermatitis. Long-term exposure to oil mist may cause benign lung fibrosis.

Physical Hazards

Epoxidized soybean oil is stable under normal conditions of use. Heating to decomposition may produce acrolein, formaldehyde, hydrogen cyanide, carbon oxides, nitrogen and other irritating or toxic gases. Avoid contact with strong oxidizers, mineral acids, strong bases, reducing agents and amines. Heating may cause expansion, leading to violent rupture of sealed containers. Exposure to heat, open flames and other potential sources of ignition must be avoided.

Potential Environmental Impact

Epoxidized soybean oil is biodegradable and will degrade rapidly in the presence of sunlight. An accidental release to water may pose a danger to fish (low toxicity), invertebrates (low toxicity) and aquatic plants (low toxicity) prior to degradation. The chemical is not expected to bioaccumulate.

Conclusion

Under normal conditions of anticipated use as described in this Product Safety Assessment, and if the recommended safe use and handling procedures are followed, epoxidized soybean oil is not expected to pose a significant risk to human health or the environment.

References

IUCLID Dataset - CAS 8013-07-8, European Chemicals Bureau, European Commission

Safety Data Sheet (SDS), EPOXIDIZED SOYBEAN OIL, ChemAdvisor, Inc.

MedlinePlus Medical Encyclopedia, U.S. National Library of Medicine and the National Institutes of Health

Screening Information Data Set (SIDS) Initial Assessment Profile for SIAM 22 - Epoxidized Oils and Derivatives, Organization for Economic Cooperation and Development

Contact Information

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Notices

Use and Application Information