

Triethyl phosphate

This document provides a brief description of triethyl phosphate, 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 material safety data sheet (SDS), product label and other safe handling literature. For additional information consult the LANXESS Corporation material safety data sheet.

Identification

Product Name:	LEVAGARD TEP-Z
Chemical Name:	Phosphoric acid, triethyl ester
Synonym(s):	Ethyl phosphate TEP Triethoxyphosphine oxide
CAS Number:	78-40-0

Description

Overview:	Triethyl phosphate is a colorless liquid at ambient temperatures. The chemical has a mild, characteristic odor.						
Uses:	Triethyl phosphate is sold by LANXESS for use as a flame retardant in the manufacture of polyisocyanurate (PIR) and polyurethane (PUR) foam insulation and thermoset plastic products. The chemical compound is also used as a viscosity reducer in plastic resins, and as a catalyst, solvent or intermediate in the production of pesticides, pharmaceuticals, lacquers and other products.						
Properties:	<table><tr><td>Boiling Point:</td><td>215.5°C (419°F)</td></tr><tr><td>Flash Point:</td><td>115°C (240°F)</td></tr><tr><td>Solubility in Water:</td><td>Miscible</td></tr></table>	Boiling Point:	215.5°C (419°F)	Flash Point:	115°C (240°F)	Solubility in Water:	Miscible
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Solubility in Water:	Miscible						

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure exists during manufacture and at bulk unloading, storage and staging areas in facilities where the chemical is used as an additive or ingredient in the manufacture of other products. A much lower potential for exposure exists in facilities using triethyl phosphate in closed manufacturing processes by trained personnel.

Employee Training

Workers handling triethyl phosphate 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 cartridges and particulate prefilter can be used to minimize exposure where vapor concentrations may occur. In addition, LANXESS recommends that tightly fitting safety goggles, rubber gloves, long pants, long-sleeved shirts and foot protection be worn when handling triethyl phosphate.

Consumer Exposure

LANXESS Corporation does not sell triethyl phosphate to the general public. Consumers may be exposed to trace amounts of the chemical compound through inhalation of ambient air, ingestion of drinking water or dermal contact with products that include the chemical as an additive.

Short-Term Health Effects

Triethyl phosphate is severely irritating to the eyes with symptoms of redness, tearing, stinging and swelling. Permanent eye damage may occur. Prolonged vapor contact may cause conjunctivitis. Prolonged or repeated skin contact may lead to skin irritation, dryness and inflammation. Triethyl phosphate may be harmful if swallowed or inhaled. Symptoms of ingestion may include abdominal pain, nausea, vomiting and diarrhea. Ingestion of sufficient quantities of the chemical may cause nervous system damage with symptoms of numbness, headache, lack of coordination and confusion. Overexposure to vapors may produce dizziness, drowsiness or nausea. Acute overexposure to this product may result in systemic intoxication.

Long-Term Health Effects

Reproductive effects have been observed in animal studies.

Physical Hazards

Triethyl phosphate is stable under normal conditions of use. Avoid contact with strong bases and oxidizing agents. Triethyl phosphate is combustible at high temperatures. Heating to decomposition may release carbon dioxide, carbon monoxide, phosphorus oxides and other potentially toxic fumes or gases. Avoid heat, open flames and other potential sources of ignition.

Potential Environmental Impact

Triethyl phosphate is not readily biodegradable. An accidental release of vapors to air, or liquid to soils or water, will degrade slowly in the environment. Releases 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 adsorb to suspended soils and sediments.

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, triethyl phosphate is not expected to pose a significant risk to human health or the environment.

References

International Chemical Safety Card, TRIETHYLPHOSPHATE, International Programme on Chemical Safety (IPCS)

Material Safety Data Sheet (SDS), LEVAGARD TEP-Z, LANXESS Corporation

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

SIDS Initial Assessment Report - Triethylphosphate, Organization for Economic Cooperation and Development (OECD)

ToxNet Hazardous Substance Data Bank, U.S. National Library of Medicine, National Institutes of Health and the U.S. Department of Health and Human Services

Contact Information

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Notices

Use and Application Information

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.