Phosphoric acid, triphenyl ester

This document provides a brief description of phosphoric acid, triphenyl ester, 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:	Phosphoric acid, triphenyl ester
Chemical Name:	Triphenyl phosphate
Synonym(s):	TPP Triphenoxyphosphine oxide
CAS Number:	115-86-6

Description

Overview: Phosphoric acid, triphenyl ester is a colorless solid at ambient temperatures. The chemical is odorless and is sold in pellet form.

Uses: Phosphoric acid, triphenyl ester is sold by LANXESS for use as a flame retardant additive in the manufacture of plastic products. The chemical is also used as a flame retardant additive in hydraulic fluids, lubricating oils, adhesives, lacquers, varnishes, inks and coatings.

Properties:

Melting Point:	Approx. 122°F (50°C)
Boiling Point:	777°F (414°C)
Flash Point:	> 428°F (220°C)
Decomposition:	> 770°F (410°C)
Solubility in Water:	Slight

Potential Human Health Effects

Occupational Exposure

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

Employee Training

Workers handling phosphoric acid, triphenyl ester should be trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. A NIOSH approved respirator is recommended for packaging, unloading and other operations not contained within a closed system. In addition, LANXESS recommends that goggles and gloves be worn when handling phosphoric acid, triphenyl ester. Product handlers should be screened for pre-existing neuromuscular disorders, which may increase risks from occupational exposure.

Consumer Exposure

LANXESS does not sell phosphoric acid, triphenyl ester to the general public. Handling of plastic products or other products manufactured using phosphoric acid, triphenyl ester as an additive may expose consumers to trace amounts of the chemical. Trace amounts of phosphoric acid, triphenyl ester have also been detected in indoor air, drinking water and some food products.

Short-Term Health Effects

Phosphoric acid, triphenyl ester may be mildly irritating to skin. Eye contact may be irritating with symptoms of redness, tearing and stinging. Inhaling phosphoric acid, triphenyl ester dust or fumes may cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose. Ingestion of the chemical may cause abdominal pain, nausea, vomiting and diarrhea. Inhaling or ingesting phosphoric acid, triphenyl ester in sufficient quantities may inhibit production of cholinesterase, an important enzyme of the nervous system. Symptoms may include vomiting, diarrhea, abdominal cramps, dizziness, sweating or muscle weakness in fingers or other extremities.

Severe cases of overexposure may result in fatigue, convulsions, low blood pressure, cardiac irregularities, loss of reflexes, coma or respiratory failure. These symptoms may be delayed.

Long-Term Health Effects

Prolonged or repeated exposure to phosphoric acid, triphenyl ester may cause injury to the nervous system, kidneys and liver.

Physical Hazards

Phosphoric acid, triphenyl ester is stable under normal conditions of use. Avoid contact with strong oxidizing agents. Heating to decomposition may release carbon monoxide, carbon dioxide, phenol, oxides of phosphorus and other undetermined compounds. Exposure to heat, open flames and other potential sources of ignition should be avoided.

Potential Environmental Impact

Phosphoric acid, triphenyl ester is readily biodegradable. If released to water the chemical may adsorb to suspended solids and sediments. Phosphoric acid, triphenyl ester may pose a danger to fish (high toxicity), invertebrates (high toxicity) and aquatic plants (high toxicity) prior to degradation. Bioaccumulation may occur in fish and other aquatic species.

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, phosphoric acid, triphenyl ester is not expected to pose a significant risk to human health or the environment.

References

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

Safety Data Sheet (SDS), DISFLAMMOL TP, LANXESS Corporation

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

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

Triphenyl Phosphate Screening Information Data Set (SIDS) Initial Assessment Profile, Organization for Economic Cooperation and Development

Contact Information

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Notices

Use and Application Information