LANXESS
Energizing Chemistry

2-Phosphono-1,2,4-butanetricarboxylic acid

This document provides a brief description of 2-Phosphono-1,2,4-butanetricarboxylic acid, 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:	2-Phosphono-1,2,4-butanetricarboxylic acid
Chemical Name:	1,2,4-Butanetricarboxylic acid, 2-phosphono
Synonym(s):	PBTC PBS-AM Phosphonobutanetricarboxylic acid
CAS Number:	37971-36-1

Description

Overview:	2-Phosphono-1,2,4-butanetricarboxylic acid is a colorless to light yellow solid at ambient temperatures with a very faint odor. The chemical is dissolved in water and sold as a solution in liquid form.	
Uses:	2-Phosphono-1,2,4-butanetricarboxylic acid is used as a scale inhibitor in industrial cooling water and water treatment applications and as an ingredient in industrial cleaning agents.	
Properties:	**Boiling Point:**	> 212°F (100°C)
	Flash Point:	> 212°F (100°C)
	Solubility in Water:	Miscible

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure to 2-Phosphono-1,2,4-butanetricarboxylic acid exists through inhalation, skin or eye contact during cleaning, maintenance and drum filling operations in facilities that manufacture the chemical; at transloading facilities, during transfers to storage or staging areas and in the application of cleaning agents that include the solution as an ingredient. A much lower potential for exposure to 2-Phosphono-1,2,4-butanetricarboxylic acid exists within facilities using it as a scale inhibitor in closed cooling systems.

Employee Training

Workers handling 2-Phosphono-1,2,4-butanetricarboxylic acid are 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 transloading, unloading and other operations not contained within a closed system. In addition, LANXESS recommends that goggles, permeation resistant clothing, gloves and foot protection be worn when handling 2-Phosphono-1,2,4-butanetricarboxylic acid.

Consumer Exposure

LANXESS Corporation does not sell this product to the general public and there are no consumer applications for the chemical.

Short-Term Health Effects

Inhalation of 2-Phosphono-1,2,4-butanetricarboxylic acid may cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose. Skin contact may result in redness and itching of the affected area. Short-term eye contact may cause irritation with symptoms of redness, tearing, stinging and swelling. 2-Phosphono-1,2,4-butanetricarboxylic acid is not expected to be harmful if swallowed, but ingestion of sufficient quantities may include abdominal pain, nausea, vomiting or diarrhea.

Long-Term Health Effects

Repeated or prolonged overexposure may cause effects as noted under Short-Term Health Effects. No long-term health effects have been reported.

Physical Hazards

2-Phosphono-1,2,4-butanetricarboxylic acid is stable, non-flammable and non-volatile. The chemical is corrosive to carbon steel and other metals. Heating to decomposition may release carbon monoxide and other toxic gases. Exposure to heat, open flames and other potential sources of ignition should be avoided.

Potential Environmental Impact

2-Phosphono-1,2,4-butanetricarboxylic acid is not biodegradable but does break down with prolonged exposure to light. Untreated wastewater or cooling water may pose a potential danger to fish (slight toxicity), invertebrates (moderate toxicity) and aquatic plants (moderate toxicity) prior to degrading. Accumulation in biological tissues is not expected but the 2-Phosphono-1,2,4-butanetricarboxylic acid may bind to suspended particles 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, 2-Phosphono-1,2,4-butanetricarboxylic acid is not expected to pose a significant risk to human health or the environment.

References

PBTC Screening Information Data Set (SIDS), Organization for Economic Cooperation and Development

Safety Data Sheet (SDS), Bayhibit AM Inhibitor, LANXESS Corporation

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

Contact Information

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Notices

Use and Application Information