

2-Phosphono-1,2,4-butane-1,2,4-tricarboxylic acid

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

Description

Overview:	2-Phosphono-1,2,4-butane-1,2,4-tricarboxylic 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-butane-1,2,4-tricarboxylic acid is used as a scale inhibitor in industrial cooling water and water treatment applications and as an ingredient in industrial cleaning agents.						
Properties:	<table><tr><td>Boiling Point:</td><td>> 212°F (100°C)</td></tr><tr><td>Flash Point:</td><td>> 212°F (100°C)</td></tr><tr><td>Solubility in Water:</td><td>Miscible</td></tr></table>	Boiling Point:	> 212°F (100°C)	Flash Point:	> 212°F (100°C)	Solubility in Water:	Miscible
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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

The conditions of your use and application of our products, technical assistance and information (whether verbal, written or by way of production evaluation(s)), 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 at least must include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by LANXESS. All information is given without warranty or guarantee. It is expressly understood and agreed that customer assumes and hereby expressly releases LANXESS from all liability, in tort, contract or otherwise, incurred in connection with the use of our products and information. Any statement or recommendation not contained herein is unauthorized and shall not bind LANXESS Corporation. Nothing herein shall be construed as a recommendation to use any product in violation of any patent covering any material or its use. No permission or license to use any patent is implied or in fact granted by this publication.