

Tri-n-Butyl Citrate

This document provides a brief description of tri-n-butyl citrate, 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 Corporation safety data sheet.

Identification

Chemical Name:	1,2,3-Propanetricarboxylic acid, 2-hydroxy-, 1,2,3-tributyl ester
Synonym(s):	Tributyl citrate 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tributyl ester Butyl citrate Citric acid tributyl ester Tributyl citric acid Tri-n-butyl citrate (TBC)
CAS Number:	77-94-1
Applicable LANXESS Materials:	Uniplex 83

Description

Overview:	Tributyl citrate (TBC) is a clear, colorless to yellow, liquid at ambient temperatures. The material has a slight, characteristic odor.
Uses:	TBC, as sold by LANXESS, is primarily for use as a plasticizer for polyactic acid, cellulose acetate, and vinyl. The organic compound is used as an intermediate or additive in the production of products including cosmetics, polyvinyl chloride (PVC) flooring, and bottle caps.
Properties:	Solubility in Water: \approx 6.5g/100ml (25°C); Insoluble Relative density: 1.04 Boiling Point: 170°C (338°F) Flash Point: Open cup: 183.89°C (363°F)

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure exists during manufacture, and in unloading, storage, staging and transfer operations at facilities using the LANXESS material in the production of other products. A much lower potential for exposure exists in facilities using TBC in closed manufacturing processes by trained personnel.

Employee Training

Workers handling TBC should be trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. In cases where ventilation is insufficient or airborne concentrations are unknown, a NIOSH approved, air-purifying organic vapor respirator should be used. In addition, it is recommended to use splash proof goggles and permeation resistant gloves, work clothing and foot protection be worn when handling the liquid.

Consumer Exposure

LANXESS Corporation does not sell TBC, nor materials containing the substance, to the general public.

Short-Term Health Effects

No known significant effects or critical hazards.

Long-Term Health Effects

No known significant effects or critical hazards.

Physical Hazards

Tributyl citrate is stable under normal conditions of use. Prevent contact with oxidizing agents, esters, and nitrates. Avoid heat, open flames and other potential sources of ignition. Heating to decomposition may release carbon monoxide and carbon dioxide.

Potential Environmental Impact

This substance is readily biodegradable. An accidental release to the environment may pose a danger to fish (low toxicity), invertebrates (low toxicity) and other aquatic organisms (low toxicity) prior to degradation.

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, this material is not expected to pose a significant risk to human health or the environment.

References

ChemAdvisor, Tributyl Citrate, 2017

European Chemicals Agency, Tributyl Citrate, December 2017

Plastics Additives Business Product Brochure: Plasticizers, LANXESS Corporation, 2012

Safety Data Sheet (SDS), Uniplex 83, LANXESS Corporation

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.