Richest Group
No. 999, Jiangyue Rd, Minhang, Shanghai 201114, China
Tel: 0086 21 5017 5386
E-mail: inquiry@richest-group.com
Web: www.richest-group.com

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Product: 2-Phosphonobutane-1,2,4-Tricarboxylic Acid (PBTCA) 50%	Revision date: 2026-10-29	Version: 1.0	Brand: Richest

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product name	2-Phosphonobutane-1,2,4-Tricarboxylic Acid (PBTCA) 50%
Synonyms	PBTC; PBTCA; 2-Phosphonobutane-1,2,4-tricarboxylic acid
CAS No.	37971-36-1
EC No.	253-733-5
Molecular formula	C7H11O9P
Molecular weight	270.13 g/mol
Relevant identified uses	High-performance scale and corrosion inhibitor for industrial water treatment
Uses advised against	None
Company	Richest Group Ltd.
Address	No. 999, Jiangyue Rd, Minhang, Shanghai 201114, China
Telephone	+86 21 5017 5386
WhatsApp	+86 13472638548
E-mail	inquiry@richest-group.com
Website	www.richest-group.com
Emergency telephone number	+86 13472638548

SECTION 2: Hazards identification

GHS Classification	Serious eye damage/eye irritation Category 2
Pictogram(s)	GHS07 (Exclamation mark)
Signal word	Warning
Hazard statement(s)	H319 Causes serious eye irritation
Precautionary statement(s)	P264 Wash hands thoroughly after handling P280 Wear eye protection/face protection

	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337+P313 If eye irritation persists: Get medical advice/attention
Other hazards	None known.

SECTION 3: Composition/information on ingredients

Component	2-Phosphonobutane-1,2,4-Tricarboxylic Acid
CAS No.	37971-36-1
EC No.	253-733-5
Classification	Eye Irrit. 2; H319
Concentration (%)	50 %

SECTION 4: First aid measures

If inhaled	Remove person to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if you feel unwell.
In case of skin contact	Wash off with soap and plenty of water. If skin irritation occurs: Get medical advice/attention.
In case of eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If swallowed	Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor if you feel unwell.
Most important symptoms and effects	Causes serious eye irritation.
Indication of any immediate medical attention	Treat symptomatically.

SECTION 5: Firefighting measures

Suitable extinguishing media	Water spray, dry chemical, foam, carbon dioxide (CO2)
Unsuitable extinguishing media	None.
Special hazards arising from the chemical	May decompose on heating or combustion to generate carbon oxides and phosphorus oxides.
Advice for firefighters	Wear self-contained breathing apparatus and full protective clothing for firefighting if necessary.

SECTION 6: Accidental release measures	
Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.
Environmental precautions	Do not let product enter drains.
Methods and materials for containment and cleaning up	Absorb with liquid-binding material (sand, earth, sawdust). Collect in suitable closed containers and dispose of in accordance with local regulations. Clean up affected area with water.

SECTION 7: Handling and storage	
Precautions for safe handling	Avoid contact with skin and eyes. Provide appropriate exhaust ventilation. Wear suitable protective equipment. Wash hands thoroughly after handling.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a cool, dry and well-ventilated place. Keep away from oxidizing agents and strong bases.

SECTION 8: Exposure controls/personal protection	
Occupational exposure limit values	No specific occupational exposure limit values established.
Biological limit values	None established.
Appropriate engineering controls	Ensure adequate ventilation. Install safety shower and eye bath.
Eye/face protection	Safety goggles or face-shield.
Skin protection	Protective gloves (nitrile rubber).
Body protection	Protective clothing.
Respiratory protection	Vapor respirator when mist or aerosol is generated. Follow local and national regulations.
Thermal hazards	None known.

SECTION 9: Physical and chemical properties	
Physical state	Liquid
Colour	Colorless
Odour	Odourless
Melting point / freezing point	< 0 °C (freezing point of 50 % aqueous solution)
Boiling point or initial boiling point and boiling range	ca. 100-105 °C (50 % aqueous solution)

Flammability	Non-flammable (aqueous solution)
Lower and upper explosion limit / flammability limit	Not applicable (aqueous solution)
Flash point	Not applicable (aqueous solution)
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
pH	1.5-2.0 (1 % water solution)
Kinematic viscosity	No data available
Solubility	Soluble in water
Partition coefficient n-octanol/water	log Pow < 1 (hydrophilic; low bioaccumulation potential)
Vapour pressure	ca. 23 hPa at 20 °C (as water)
Density and/or relative density	≥1.27 g/cm3 (20 °C)
Relative vapour density	Not applicable
Particle characteristics	Not applicable (liquid)

SECTION 10: Stability and reactivity

Reactivity	Reacts with strong oxidizing agents and strong bases.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	None known under normal conditions of use.
Conditions to avoid	Heat, flames and high temperatures
Incompatible materials	Oxidizing agents, strong bases
Hazardous decomposition products	Carbon oxides, phosphorus oxides

SECTION 11: Toxicological information

Acute toxicity - Oral / Inhalation / Dermal	LD50 Oral - Rat: > 2000 mg/kg
Skin corrosion/irritation	Acidic solution (pH 1.5-2.0); may cause mild skin irritation on prolonged contact.
Serious eye damage/irritation	Causes serious eye irritation (H319).
Respiratory or skin sensitization	Not expected to cause sensitization.
Germ cell mutagenicity	Not mutagenic (Ames test: negative).

Carcinogenicity	Not classified (not listed by IARC/NTP).
Reproductive toxicity	Not classified
STOT - single exposure	None known.
STOT - repeated exposure	None known.
Aspiration hazard	Not expected to present an aspiration hazard.

SECTION 12: Ecological information

Toxicity to fish / daphnia / algae	Low acute toxicity to aquatic organisms (LC50/EC50 > 100 mg/l).
Persistence and degradability	Not readily biodegradable (phosphonate); hydrolytically stable; photodegrades slowly in surface water.
Bioaccumulative potential	Low bioaccumulation potential (hydrophilic, log Pow < 1).
Mobility in soil	Highly soluble in water; partly adsorbs to sediment.
Other adverse effects	Contains phosphorus; release of large amounts may contribute to eutrophication.

SECTION 13: Disposal considerations

Product disposal methods	Dispose of contents/container to an approved waste disposal plant in accordance with local and national regulations.
Contaminated packaging	Dispose of as unused product in accordance with local regulations.

SECTION 14: Transport information

UN Number (ADR/RID, IMDG, IATA)	Not regulated as dangerous goods
UN Proper Shipping Name	Not regulated
Transport hazard class(es)	Not regulated
Packing group	Not regulated
Environmental hazards (Marine pollutant)	No
Special precautions for user	None known.

SECTION 15: Regulatory information

Safety, health and environmental	EINECS: Listed (253-733-5) / TSCA: Listed / IECSC: Listed / China Catalog

regulations specific for the product	of Hazardous Chemicals 2015: Not listed

SECTION 16: Other information

Full text of H-Statements	H319 Causes serious eye irritation
Revision date	2026-10-29
Version	1.0

Abbreviations and acronyms: CAS: Chemical Abstracts Service; EC: European Commission; EINECS: European Inventory of Existing Commercial Chemical Substances; ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road; RID: Regulation concerning the International Carriage of Dangerous Goods by Rail; IMDG: International Maritime Dangerous Goods; IATA: International Air Transport Association; TWA: Time Weighted Average; STEL: Short Term Exposure Limit; LD50: Lethal Dose 50%; LC50: Lethal Concentration 50%; EC50: Effective Concentration 50%; PBT: Persistent, Bioaccumulative and Toxic; vPvB: very Persistent and very Bioaccumulative; SDS: Safety Data Sheet.

References: ECHA - European Chemicals Agency, https://echa.europa.eu/; IPCS - International Chemical Safety Cards (ICSC), http://www.ilo.org/; HSDB - Hazardous Substances Data Bank; eChemPortal - OECD Global Portal to Information on Chemical Substances; ERG - Emergency Response Guidebook by U.S. DOT.

Disclaimer: The information in this SDS is only applicable to the specified product and is provided in good faith. It is based on the knowledge available to Richest Group Ltd. at the date of issue and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute any guarantee of the properties of the product. Richest Group Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product.