



SAFETY DATA SHEET

PHOSPHONOBUTANE TRICARBOXYLIC ACID SOLUTION

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

1.1. Product identifier

Product name	PHOSPHONOBUTANE TRICARBOXYLIC ACID SOLUTION
Product number	12105
Synonyms; trade names	PBTC, BAYHIBIT AM, PBTC 50% SOL, DEQUEST 7000, PBTC 50%

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical Complexing Agent Dispersant
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
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Sds No.	12105
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Met. Corr. 1 - H290
Health hazards	Eye Irrit. 2 - H319
Environmental hazards	Not Classified

2.2. Label elements

Hazard pictograms



Signal word	Warning
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Hazard statements	H290 May be corrosive to metals. H319 Causes serious eye irritation.
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Precautionary statements

P234 Keep only in original packaging.
P280 Wear protective gloves/ protective clothing/ 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.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

2 PHOSPHONOBUTANE 1,2,4 TRICARBOXYLIC ACID		30 - 60%
CAS number: 37971-36-1	EC number: 253-733-5	REACH registration number: 01-2119436643-39-XXXX
Classification Met. Corr. 1 - H290 Eye Irrit. 2 - H319		

The full text for all hazard statements is displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact	Prolonged skin contact may cause redness and irritation.
Eye contact	Irritation of eyes and mucous membranes.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

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Specific hazards Protection against nuisance dust must be used when the airborne concentration exceeds 10 mg/m³. Carbon dioxide (CO₂). Carbon monoxide (CO). Oxides of the following substances: Phosphorus.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Stop leak if possible without risk. Absorb in vermiculite, dry sand or earth and place into containers. Flush contaminated area with plenty of water. Neutralise spilled material with crushed limestone, soda ash or lime.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Provide adequate ventilation. Mechanical ventilation or local exhaust ventilation may be required. Avoid inhalation of vapours and spray/mists. Avoid spilling. Avoid contact with skin and eyes. Avoid contact with the following materials: Strong alkalis.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Unsuitable container materials: Common metals. Keep only in the original container. Store away from the following materials: Strong alkalis.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Ingredient comments No exposure limits known for ingredient(s).

2 PHOSPHONOBUTANE 1,2,4 TRICARBOXYLIC ACID (CAS: 37971-36-1)

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DNEL

Workers - Inhalation; Long term systemic effects: 15 mg/m³
 Workers - Inhalation; Short term systemic effects: 158 mg/m³
 Workers - Dermal; Long term systemic effects: 4.2 mg/kg/day
 Workers - Dermal; Short term systemic effects: 80 mg/kg/day
 General population - Inhalation; Long term systemic effects: 3.7 mg/m³
 General population - Inhalation; Short term systemic effects: 79 mg/m³
 General population - Dermal; Long term systemic effects: 2.1 mg/kg/day
 General population - Dermal; Short term systemic effects: 40 mg/kg/day

PNEC

- Fresh water; 3.33 mg/l
 - marine water; 0.33 mg/l
 - Intermittent release; 10.42 mg/l
 - STP; 50.4 mg/l
 - Sediment (Freshwater); 1.47 mg/kg
 - Soil; 0.491 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. It is recommended that gloves are made of the following material: Neoprene. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate. Wear rubber apron. Wear rubber footwear.

Hygiene measures

Good personal hygiene procedures should be implemented. Eye wash facilities and emergency shower must be available when handling this product.

Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless to pale yellow.
Odour	Odourless.
Odour threshold	No specific test data are available.
pH	pH (diluted solution): 1.5 - 2.0 @ 1%
Melting point	-15°C

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Initial boiling point and range	100°C
Flash point	> 100°C
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	2 kPa @ 20°C
Vapour density	No information available.
Relative density	No information available.
Bulk density	1270 - 1300 kg/m ³
Solubility(ies)	Miscible with water.
Partition coefficient	: -1.36
Auto-ignition temperature	>500°C
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	No information available.
Explosive under the influence of a flame	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	Not determined.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	No information available.
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

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Possibility of hazardous reactions Not determined.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid Strong alkalis. Metals

10.6. Hazardous decomposition products

Hazardous decomposition products Fire creates: Carbon dioxide (CO₂). Carbon monoxide (CO). Oxides of the following substances: Phosphorus.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 6,500.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 4,000.0

Species Rat

Skin corrosion/irritation

Animal data No information available.

Serious eye damage/irritation

Serious eye damage/irritation No information available.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

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Inhalation	May cause respiratory system irritation.
Ingestion	May cause discomfort if swallowed.
Skin contact	Slightly irritating.
Eye contact	May cause temporary eye irritation.

SECTION 12: Ecological information

Ecotoxicity	The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.
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12.1. Toxicity

Toxicity	Not considered toxic to fish.
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Acute aquatic toxicity

Acute toxicity - fish	LC ₅₀ , 96 hours: > 1042 mg/l, OECD 203
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Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: > 1071 mg/l, Daphnia magna OECD 202
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Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: > 140 mg/l, Scenedesmus subspicatus OECD 201
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12.2. Persistence and degradability

Persistence and degradability	The product is not readily biodegradable.
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12.3. Bioaccumulative potential

Bioaccumulative potential	No data available on bioaccumulation.
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Partition coefficient	: -1.36
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12.4. Mobility in soil

Mobility	The product is soluble in water.
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12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.
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12.6. Other adverse effects

Other adverse effects	No information required.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Waste is classified as hazardous waste.
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Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
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SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	3265
UN No. (IMDG)	3265
UN No. (ICAO)	3265

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UN No. (ADN) 3265

14.2. UN proper shipping name

Proper shipping name (ADR/RID) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2 PHOSPHONOBUTANE 1,2,4 TRICARBOXYLIC ACID)

Proper shipping name (IMDG) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2 PHOSPHONOBUTANE 1,2,4 TRICARBOXYLIC ACID)

Proper shipping name (ICAO) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2 PHOSPHONOBUTANE 1,2,4 TRICARBOXYLIC ACID)

Proper shipping name (ADN) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2 PHOSPHONOBUTANE 1,2,4 TRICARBOXYLIC ACID)

14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID classification code C3

ADR/RID label 8

IMDG class 8

ICAO class/division 8

ADN class 8

Transport labels



14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

ADN packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

IMDG Code segregation group 1. Acids

EmS F-A, S-B

ADR transport category 3

Emergency Action Code 2X

Hazard Identification Number (ADR/RID) 80

Tunnel restriction code (E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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Transport in bulk according to Not applicable.
Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Commission Regulation (EU) No 2015/830 of 28 May 2015.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

01/06/2017

Version number

2.001

Supersedes date

26/12/2016

SDS number

12105

PHOSPHONOBUTANE TRICARBOXYLIC ACID SOLUTION

SDS status	Approved.
Hazard statements in full	H290 May be corrosive to metals. H319 Causes serious eye irritation.
Signature	Jitendra Panchal