Preparation Date 09-Jan-2018 **Revision date** 09-Jan-2018 **Revision Number:** 1

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the product

Product Description	Tributyl Phosphate
Pure Substance/preparation	Substance
CAS-No	126-73-8
EC number	204-800-2
Index number	015-014-002
Reach Registration number	A registration number is not available for this substance as the substance or its uses may be exempted or annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Recommended use	Laboratory chemical, Manufacture of substances
Uses advised against	No uses advised against has been identified

1.3 Details of the Supplier of the Safety Data Sheet

Supplier

UPL Limited
CTS No. 610 B/2, Bandra Village,
Off Western Express Highway,
Behind Teachers Colony,
Bandra East, Mumbai,
Maharashtra 400051

Telephone	022 7152 8000
E-mail address	info.in@uniphos.com

1.4 Emergency Telephone Number

Emergency telephone number	022 7152 8000 (From 9:00 A.M. to 5:00 P.M.)

2. Hazard Identification

2.1 Classification of the substance or Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Oral Toxicity	Category 4 - (H302)
Skin corrosion/Irritation	Category 2 - (H315)
Carcinogencity	Category 2 - (H351)
Aquatic chronic toxicity	Category 3 - (H412)

2.2 Label elements

Signal Word **Warning**

Hazard Statement

H302	Harmful if swallowed
H315	Causes skin irritation
H351	Suspected of causing cancer
H412	Harmful to aquatic life with long-lasting effect

Precautionary Statements

Prevention
P201 Obtain special instruction before use.
P202 Do not handle until all safety precautions have been read and understood.
P270 Do not eat, drink or smoke while using this product.
P264 Wash hands, face and exposed skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.

Response
P308+P313 IF exposed or concerned: Get medical advice/attention.
P301+312 IF SWALLOWED: Call a POISON CENTRE/doctor or physician if you feel unwell.
P330 Rinse mouth
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P321 Specific treatment (see … on this label)
P333+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal
P501 Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards

The substance does not meet the criteria for a PBT or vPvB substance

3. Composition/information on Ingredients

3.1. Substance

Chemical name	CAS-No	EC No	Weight %	EU - GHS Substance Classification (REGULATION (EC) No 1272/2008)	REACH No.
Tributyl Phosphate	126-73-8	204-800-2	<=100	Acute Tox. 4 ; Skin Irrit. 2; Carc. 2,Aquatic chronic.3 H302,H315,H351,H412	no data available

For the full text of the H-Statements mentioned in this Section, see Section 16

4. First aid measures

4.1 Description of first-aid measures

General advice In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If you feel unwell call a POISON CENTER or doctor/ physician.

Skin contact Wash off with soap and plenty of water for at least 15-30 minutes. Clean contaminated clothing and shoes before reuse or discard if they cannot be thoroughly cleaned. If skin irritation or rash develops, get medical attention.

Ingestion Never give anything by mouth to an unconscious person. Rinse mouth. Do not induce vomiting unless told by physician. If vomiting occurs ensure patient can breathe. Get medical attention, if you feel unwell.

Inhalation IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed

Treat symptomatically and supportively.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Dry chemical,CO_2, Water spray or alcohol-resistant foam

Unsuitable extinguishing media High pressure water jets may scatter and spread fire

5.2 Special hazards arising from the substance or mixture

Special Hazard Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.
Hazardous decomposition products formed under fire conditions:
Carbon oxides, Phosphorus oxide

5.3 Advice for Firefighters

Wear self-contained breathing apparatus and protective suit. In case of fire and/or explosion do not breathe fumes.
Use standard firefighting procedures and consider the hazards of involved material.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through split material. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

6.2 Environmental Precautions

Avoid dispersal of split material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Large spills: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbant material eg. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contratcor. Contaminated absorbent material may pose the same hazard as the spilt product.

Small spill: Stop leak if without risk. Move conatiners from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licenced waste disposal contractor.
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6.4 Reference to other sections

Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

7. Handling and Storage

7.1 Precautions for Safe Handling

7.1.1 Handling

Put on appropriate personal protective equipment. Eating, drinking and smoking should beprohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator.

7.1.2 Hygiene measures

Wash thoroughly after handling. Keep away from food, drink and animal feeding stuffs. Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials, food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end uses

Laboratory chemical, Manufacture of substances.

8. Exposure Controls/ Personal Protection

8.1 Control Parameters

Exposure Limits Apply technical measures to comply with the occupational exposure limits.

Chemical name	ACGIH TLV	OSHA PEL
Tributyl phosphate	TWA: 5 mg/m^3 inhalable fraction and vapor	TWA: 5 mg/m^3 (vacated) TWA: 0.2 ppm (vacated) TWA: 2.5 mg/m^3

Derived No Effect level (DNEL) No information available

Predicted No Effect Concentration No information available

8.2 Exposure Controls

Appropriate Engineering Control Ensure adequate ventilation, especially in confined areas. If applicable, use process enclosure, local exhaust ventilation, or other engineering controls to maintain airborne level below recommended exposure limits. If exposure limits have not been established maintain airborne levels to acceptable level.

Personal protective equipment

Eye protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH(US) or EN 166(EU)
Skin protection	Long-sleeved clothing. Preventative skin protection is recommended.
Hand protection	Wear suitable protective glove/clothing. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

Environmental exposure controls Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Colorless & odorless liquid
Physical state	Colorless
Odor	Pungent
Odor threshold	No information available

Property	VALUES	Remarks/ Method
pH	No information available	
Melting point/freezing point	-80˚C	
Boiling Point/Range	289°C	
Flash Point	146°C	
Evaporation rate	No information available	
Flammability (solid, gas)	Not-applicable	
Flammability or explosive limits	Non-flammable	
Upper	Non-flammable	
Lower	Non-flammable	
Relative Density	1.972 g/cm^3 at 25˚C	
Vapor Density	No information available	
Vapor pressure (air = 1)	0.000000346 Pa at 25˚C	
Water solubility	280 PPM	
Solubility in Other Solvents	No information available	
Partition coefficient: n-octanol/water	101000	
Autoignition temperature	>482˚C	
Decomposition temperature	No information available	
Viscosity Kinematics	39.6 cSt at 34˚C	
Viscosity Dynamics	No information available	
Oxidizing properties	No information available	
Explosive properties	Non-explosive	

9.2 OTHER INFORMATION

VOC Content No information available

10. Stability and Reactivity

10.1 Reactivity

No information available

10.2 Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3 Possibility of hazardous reaction

No dangerous reactions known.

10.4 Conditions to avoid

Heat, flame and other sources of ignition.

10.5 Incompatible Materials

Strong oxidisers and strong bases.
May soften some plastics and elastomers.
Avoid wet alkaline condition ,especially when the material is heated , because tributyl phosphate undergoes hydrolysissto produce butyl alcohol and alkyl phosphoric acid salts.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

11. 1 Information on Toxicological Effects

Acute toxicity

LD50/Oral = 1.6 mg/kg (female rats)
LD50/Dermal = >3100 mg/kg
LC50/Inhalation = 4242mg/m^3

(Source: ECHA)

Local effect

Inhalation	May cause respiratory irritation.
Eye contact	Causes mild eye irritation.
Skin contact	Causes skin burns.
Ingestion	Harmful if swallowed

Chronic toxicity

Skin Corrosion/Irritation	Causes skin irritation.
Eye damage/irritation	Causes mild eye irritation
Sensitization	No additional information available.
Mutagenic effects	No additional information available.

Carcinogenic effects	Suspected of causing cancer.
Reproductive effects	No additional information available.
STOT - Single Exposure	No additional information available.
STOT - repeated exposure	No additional information available.
Aspiration hazard	No additional information available.

12. Ecological Information

12.1 Ecotoxicity

Harmful to aquatic life with long-lasting effect.

Fish/96hr/LC50 = 17mg/L
Daphnia/48hr/EC50 = 1.8 mg/L
Alga/96hr/EC50 = 4.4mg/L
(Source: ECHA)

12.2 Persistence and Degradability

When released into soil, this material may biodegrade to a moderate extent.

12.3 Bioaccumulative Potential

Bioconcentration factor (BCF): 21 - 35

12.4 Mobility in Soil

When released into the soil, this material is not expected to leach into ground water.

12.5 Results of PBT and vPvB Assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other Adverse Effects

The product does not contain organically bound halogens which could lead to an AOX value in waste water.

The product does not contain heavy metals in concentrations of concern for waste water. The product does not release nitrogen which can contribute to eutrophication. Product contains 11.6% phosphorus.

13. Disposal Considerations

13.1 Waste Treatment Methods

Waste from Residues / Unused Products	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Empty container should be taken for local recycling, recovery or waste disposal. Do not re-use container. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14. Transport Information

ADR/RID Not Regulated

IMDG/IMO Not Regulated

IATA/ICAO Not Regulated

15. Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

International Inventories

TSCA	Complies
EINECS/	Complies
ELINCS	Complies
DSL/NDSL	Complies
PICCS	Complies
ENCS	Complies
China	Complies
AICS	Complies
KECL	Complies

Legend
ECHA - European chemical agency
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out.

16. Other Information

Full text of H-Statements referred to under sections 2 and 3.
H302 Harmful if swallowed
H315 Causes skin irritation
H351 Suspected of causing cancer
H412 Harmful to aquatic life with long-lasting effects

Preparation Date	09-Jan-2018
Revision Date	09-Jan-2018
Revision Note	Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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End of Safety Data Sheet