

Revision Date 16-Nov-2010

Revision Number 1

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product Identifier

**Product Description:** Tris[2-(diphenylphosphino)ethyl]phosphine  
**Cat No.** 316830000; 316830010  
**Synonyms** TETRAPHOS-II

### Relevant identified uses of the substance or mixture and uses advised against

**Recommended Use** Laboratory chemicals  
**Uses advised against** No Information available

### Details of the supplier of the safety data sheet

#### Company

Acros Organics BVBA  
 Janssen Pharmaceuticaaan 3a  
 2440 Geel, Belgium

**E-mail address** begel.sdsdesk@thermofisher.com

### Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01  
 For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99  
 Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300  
 CHEMTREC Phone Number, Europe: 001-703-527-3887

## SECTION 2. HAZARDS IDENTIFICATION

### Classification of the substance or mixture

#### REGULATION (EC) No 1272/2008

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

### Classification according to EU Directives 67/548/EEC or 1999/45/EC

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

**Symbol(s)** Xn - Harmful  
**R-phrases(s)** none  
**Risk Combination Phrases** R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed  
 R36/37/38 - Irritating to eyes, respiratory system and skin

Tris[2-(diphenylphosphino)ethyl]phosphine

Revision Date 16-Nov-2010

## SECTION 2. HAZARDS IDENTIFICATION

### Label Elements



### Signal Word

### Warning

### Hazard Statements

H312 - Harmful in contact with skin  
H332 - Harmful if inhaled  
H302 - Harmful if swallowed  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
H315 - Causes skin irritation

### Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray  
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell  
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing  
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

### Other Hazards

No information available.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.

Tris[2-(diphenylphosphino)ethyl]phosphine

Revision Date 16-Nov-2010

Tris[2-(diphenylphosphino)ethyl]phosphine 23582-03-8	EEC No. 245-754-3	97	23582-03-8	Xn; R20/21/22 Xi; R36/37/38	STOT SE 3 (H335) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332)	-
---	-------------------	----	------------	--------------------------------	--	---

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

## SECTION 4. FIRST AID MEASURES

### Description of first aid measures

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

#### Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

#### Ingestion

Clean mouth with water. Get medical attention.

#### Inhalation

Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

#### Notes to Physician

Treat symptomatically

## SECTION 5. FIRE-FIGHTING MEASURES

### Extinguishing media

#### Suitable Extinguishing Media

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. chemical foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

#### Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors

#### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Tris[2-(diphenylphosphino)ethyl]phosphine

Revision Date 16-Nov-2010

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

### Environmental precautions

Prevent further leakage or spillage if safe to do so

### Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal.

## SECTION 7. HANDLING AND STORAGE

### Precautions for Safe Handling

Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist.

### Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep under nitrogen. Do not allow contact with air.

### Specific End Uses

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### **Derived No Effect Level (DNEL)**

No information available.

#### **Predicted No Effect Concentration (PNEC)**

No information available.

### Exposure controls

#### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas Ensure that eyewash stations and safety showers are close to the workstation location

#### **Personal protective equipment**

##### **Eye Protection**

Goggles

##### **Hand Protection**

Protective gloves

##### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

##### **Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Tris[2-(diphenylphosphino)ethyl]phosphine

Revision Date 16-Nov-2010

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls**

No information available.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State**

Powder, Solid

**Appearance**

White

**pH**

No information available.

**Boiling Point/Range**

No information available.

**Melting Point/Range**

134 - 139°C / 273.2 - 282.2°F

**Flash Point**

No information available.

**Autoignition Temperature**

No information available.

**Molecular Formula**

C<sub>42</sub> H<sub>42</sub> P<sub>4</sub>

**Molecular Weight**

670.69

## SECTION 10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Air sensitive.

Possibility of Hazardous Reactions

**Hazardous Polymerization**

No information available.

**Hazardous Reactions .**

No information available.

Conditions to Avoid

Exposure to air, Incompatible products.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Oxides of phosphorus. Phosphorus trihydride (phosphine).

## SECTION 11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

**Product Information**

No acute toxicity information is available for this product

Tris[2-(diphenylphosphino)ethyl]phosphine

Revision Date 16-Nov-2010

## SECTION 11. TOXICOLOGICAL INFORMATION

### Component Information

#### Chronic Toxicity

##### Carcinogenicity

There are no known carcinogenic chemicals in this product

##### Sensitization

No information available.

##### Mutagenic Effects

No information available

##### Reproductive Effects

No information available.

##### Developmental Effects

No information available.

##### Target Organs

No information available.

##### Other Adverse Effects

The toxicological properties have not been fully investigated.

##### Endocrine Disruptor Information

None known

## SECTION 12. ECOLOGICAL INFORMATION

#### Toxicity

##### Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

#### Persistence and degradability

No information available

#### Bioaccumulative potential

No information available.

#### Mobility in soil

No information available.

#### Results of PBT and vPvB assessment

##### Other adverse effects

No information available

## SECTION 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

##### Waste from Residues / Unused Products

Dispose of in accordance with local regulations

##### Contaminated Packaging

Empty containers should be taken to local recyclers for disposal

Tris[2-(diphenylphosphino)ethyl]phosphine

Revision Date 16-Nov-2010

## SECTION 14. TRANSPORT INFORMATION

### IMDG/IMO

UN-No 3464  
 Hazard Class 6.1  
 Packing Group III  
 Proper Shipping Name ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S.

### ADR

UN-No 3464  
 Hazard Class 6.1  
 Packing Group III  
 Proper Shipping Name ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S.

### IATA

UN-No 3464  
 Hazard Class 6.1  
 Packing Group III  
 Proper Shipping Name ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S.\*

## SECTION 15. REGULATORY INFORMATION

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

#### International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Tris[2-(diphenylphosphino)ethyl]phosphine	245-754-3	-		-	-	-	-	-	-	-	-

#### Legend

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**CHINA** - China Inventory of Existing Chemical Substances

**AICS** - Inventory of Chemical Substances

**KECL** - Existing and Evaluated Chemical Substances

**Tris[2-(diphenylphosphino)ethyl]phosphine****Revision Date 16-Nov-2010****Chemical Safety Assessment****SECTION 16. OTHER INFORMATION****Full text of R-phrases referred to under sections 2 and 3**

R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed

R36/37/38 - Irritating to eyes, respiratory system and skin

**Revision Date** 16-Nov-2010**Revision Summary****Reason for revision** Not applicable**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006****Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of Safety Data Sheet**