

**1 Identification of substance****Product details**

Trade name

**Tri-tert-butylphosphonium tetrafluoroborate**

Stock number:

L19752

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240**2 Hazards identification**

Hazard designation:



Xi Irritant

Information pertaining to particular dangers  
for man and environment  
GHS label elements

R 36/37/38 Irritating to eyes, respiratory system and skin.

**Warning**

Prevention:

Response:

H315 - Causes skin irritation.  
 H319 - Causes serious eye irritation.  
 H335 - May cause respiratory irritation.  
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P321 Specific treatment (see on this label).

Storage:

Disposal:

P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**3 Composition/information on ingredients**

Chemical characterization:

Designation: (CAS#)

Tri-tert-butylphosphonium tetrafluoroborate  
(CAS# 131274-22-1): 100%**4 First aid measures**

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.  
Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.  
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek immediate medical advice.

**5 Fire fighting measures**

Suitable extinguishing agents

Special hazards caused by the material, its  
products of combustion or flue gases:CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

Protective equipment:

Can be released in case of fire:  
 Carbon monoxide and carbon dioxide  
 Boron oxide  
 Hydrogen fluoride (HF)  
 Phosphorus oxides  
 Wear self-contained breathing apparatus.  
 Wear full protective suit.

**6 Accidental release measures**

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Measures for environmental protection:

Ensure adequate ventilation

Measures for cleaning/collecting:

Do not allow material to be released to the environment without proper governmental permits.

Additional information:

Ensure adequate ventilation.

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

**7 Handling and storage**

Handling

Information for safe handling:

Keep containers tightly sealed.  
 Store in cool, dry place in tightly closed containers.  
 Ensure good ventilation/exhaustion at the workplace.

Information about protection against  
explosions and fires:

Keep ignition sources away - Do not smoke.

Storage

Requirements to be met by storerooms and  
containers:

No special requirements.

Information about storage in one common  
storage facility:

Store away from water.  
 Store away from oxidizing agents.

Further information about storage  
conditions:

This product is hygroscopic.  
 Keep container tightly sealed.  
 Store in cool, dry conditions in well sealed containers.  
 Protect from humidity and keep away from water.

**8 Exposure controls and personal protection**Additional information about design of  
technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with critical values that require  
monitoring at the workplace:

Fluorides (as F)  
 mg/m<sup>3</sup>  
 ACGIH TLV 2.5  
 Austria MAK 2.5

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 25.08.2010

Printing date 25.08.2010

Trade name **Tri-tert-butylphosphonium tetrafluoroborate**

(Contd. of page 1)

Belgium TWA	2.5
Finland TWA	2.5
France TWA	2.5
Germany MAK	2.5
Hungary TWA	1; 2-STEL
Netherlands MAC-K	3.5
Norway TWA	0.6
Poland TWA	1; 3-STEL
Sweden NGV	2
Switzerland MAK-W	1.5; 3-KZG-W
United Kingdom TWA	2.5
Russia TWA	2
Denmark TWA	2.5
USA PEL	2.5

**Additional information:****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Use breathing protection with high concentrations.

Check protective gloves prior to each use for their proper condition.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Impervious gloves

Not determined

Safety glasses

Face protection

Protective work clothing.

**Breathing equipment:****Protection of hands:****Material of gloves****Penetration time of glove material****Eye protection:****Body protection:****9 Physical and chemical properties:****General Information**

<b>Form:</b>	Crystalline powder
<b>Colour:</b>	White
<b>Smell:</b>	Not determined

**Change in condition**

<b>Melting point/Melting range:</b>	260°C (dec)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product is not explosive.**Critical values for explosion:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Steam pressure:** Not determined**Density:** Not determined**Solubility in / Miscibility with**

<b>Water:</b>	Soluble
---------------	---------

**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

**Materials to be avoided:**

Water/moisture

Oxidizing agents

**Dangerous reactions:**

No dangerous reactions known

**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Boron oxide

Hydrogen fluoride

Phosphorus oxides (e.g. P2O5)

**11 Toxicological information****Acute toxicity:****Primary irritant effect:**

Irritant for skin and mucous membranes.

**on the skin:**

Irritant effect.

**on the eye:**

No sensitizing effect known.

**Sensitization:****Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

**12 Ecological information:****Additional ecological information:****General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

**13 Disposal considerations****Product:****Recommendation**

Consult state, local or national regulations for proper disposal.

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations.

**Uncleaned packagings:****Recommendation:**

Disposal must be made according to official regulations.

(Contd. on page 3)

**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Revision: 25.08.2010

Printing date 25.08.2010

Trade name **Tri-tert-butylphosphonium tetrafluoroborate**

Recommended cleaning agent: Water, if necessary with cleaning agent.

(Contd. of page 2)

**14 Transport information**Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)  
ADR/RID-GGVS/E Class: NoneMaritime transport IMDG/GGVSea:  
IMDG/GGVSea Class: None  
Marine pollutant: NoAir transport ICAO-TI and IATA-DGR:  
ICAO/IATA Class: None

Transport/Additional information: Not dangerous according to the above specifications.

**15 Regulatory information**

Designation according to EC guidelines:

Code letter and hazard designation of product:



Xi Irritant

Risk phrases: 36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases: 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
37 Wear suitable gloves.

National regulations

Information about limitation of use: For use only by technically qualified individuals.  
Employment restrictions concerning young persons must be observed.

Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.

Contact: Zachariah Holt

Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)