

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

**Tri-n-butyltin hydride**

Stock number:

AT3298, L00148

CAS Number:

688-73-3

EC number:

211-704-4

Index number:

050-008-00-3

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

Identified use:

SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008

 GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

 GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

 GHS08 health hazard

STOT RE 1 H372 Causes damage to the kidneys, the liver, the respiratory system, the blood tissue, the endocrine system and the immune system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

 GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

 GHS07

Acute Tox. 4 H312 Harmful in contact with skin.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
 T; Toxic

R25-48/23/25: Toxic if swallowed. Toxic; danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

 Xn; Harmful

R21: Harmful in contact with skin.

 Xi; Irritant

R36/38: Irritating to eyes and skin.

 N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R10: Flammable.

**Information concerning particular hazards for human and environment:**

Not applicable

**Other hazards that do not result in classification**

No information known.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008**

Hazard pictograms

Signal word

Hazard statements

The substance is classified and labelled according to the CLP regulation.

GHS02, GHS06, GHS08, GHS09

Danger

H226 Flammable liquid and vapour.

H301 Toxic if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H372 Causes damage to the kidneys, the liver, the respiratory system, the blood tissue, the endocrine system and the immune system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

H410 Very toxic to aquatic life with long lasting effects.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER or doctor/physician.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Precautionary statements****2.3 Other hazards****Results of PBT and vPvB assessment**

PBT:

Not applicable.

**Safety data sheet**  
according to 1907/2006/EC, Article 31

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vPvB: Not applicable.

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**SECTION 3: Composition/information on ingredients**

**3.1 Substances**  
CAS# Designation: 688-73-3 Tri-n-butyltin hydride  
Identification number(s):  
EC number: 211-704-4  
Index number: 050-008-00-3

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**  
**General information** Instantly remove any clothing soiled by the product.  
In case of irregular breathing or respiratory arrest provide artificial respiration.  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
**After inhalation** Seek immediate medical advice.  
Instantly wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.  
**After skin contact** Rinse opened eye for several minutes under running water. Then consult doctor.  
Do not induce vomiting; instantly call for medical help.  
**After eye contact**  
**After swallowing**  
**4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.  
**4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**  
**Suitable extinguishing agents** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.  
**5.2 Special hazards arising from the substance or mixture** If this product is involved in a fire, the following can be released:  
Carbon monoxide and carbon dioxide  
Metal oxide  
**5.3 Advice for firefighters**  
**Protective equipment:** Wear self-contained breathing apparatus.  
Wear full protective suit.

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Keep away from ignition sources  
**6.2 Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach sewage system or water bodies.  
Do not allow to enter the ground/soil.  
**6.3 Methods and material for containment and cleaning up:** Keep away from ignition sources.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of contaminated material as waste according to item 13.  
Keep away from ignition sources.  
**Prevention of secondary hazards:** See Section 7 for information on safe handling  
**6.4 Reference to other sections** See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling** Handle under dry protective gas.  
Handle under protective gas.  
Keep containers tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.  
**Information about protection against explosions and fires:** Protect against electrostatic charges.  
Fumes can combine with air to form an explosive mixture.  
**7.2 Conditions for safe storage, including any incompatibilities**  
**Storage**  
**Requirements to be met by storerooms and containers:** Store in freezer (-20°C).  
**Information about storage in one common storage facility:** Store away from oxidizing agents.  
Store away from air.  
Protect from heat.  
Store away from water.  
**Further information about storage conditions:** Store under dry inert gas.  
This product is moisture sensitive.  
This product is air sensitive.  
Store in freezer (-20°C).  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and keep away from water.  
Store in a locked cabinet or with access restricted to technical experts or their assistants.  
**7.3 Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/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.

**8.1 Control parameters**  
**Components with critical values that require monitoring at the workplace:**  
Tin, organic compounds, as Sn  
mg/m<sup>3</sup>  
ACGIH TLV 0.1; 0.2-STEL (skin)  
Not classifiable as a human carcinogen  
Austria MAK 0.1 (skin)  
Belgium TWA 0.1 (skin)

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Denmark TWA	0.1 (skin)
Finland TWA	0.1; 0.3-STEL (skin)
France VME	0.1
Germany MAK	0.1 (skin)
Hungary	0.1-STEL (skin)
Korea TLV	0.1; 0.2-STEL (skin)
Norway TWA	0.1
Switzerland MAK-W	0.1; 0.2-KZG-W (skin)
United Kingdom	0.1; 0.2-STEL (skin)
USA PEL	0.1

**688-73-3 Tri-n-butyltin hydride (100,0%)**AGW (Germany) 0,05 mg/m<sup>3</sup>  
1(I);DFG,H,Y

Additional information: No data

**8.2 Exposure controls****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.

Maintain an ergonomically appropriate working environment.

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.

**Breathing equipment:****Protection of hands:****Material of gloves**

Penetration time of glove material

**Eye protection:****Body protection:**

Impervious gloves

Not determined

Safety glasses

Face protection

Protective work clothing.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Colour:	Colourless
Smell:	Recognizable
Odour threshold:	Not determined.

pH-value: Not determined.

**Change in condition**

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: 40 °C

Inflammability (solid, gaseous) Not determined.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Self-inflammability: Not determined.

**Critical values for explosion:**

Lower: Not determined

Upper: Not determined

Steam pressure: Not determined

Density at 20 °C 1,103 g/cm<sup>3</sup>

Relative density Not determined.

Vapour density Not determined.

Evaporation rate Not determined.

**Solubility in / Miscibility with**

Water: Not miscible or difficult to mix

Partition coefficient (n-octanol/water): Not determined.

Viscosity:

dynamic: Not determined.

kinematic: Not determined.

9.2 Other information No further relevant information available.

**SECTION 10: Stability and reactivity****10.1 Reactivity**

No information known.

**10.2 Chemical stability**

Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions**

Contact with acids releases flammable gases

**10.5 Incompatible materials:**

Oxidizing agents

Air

Heat

Water/moisture

**10.6 Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Hydrogen

Metal oxide

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity:**

Harmful in contact with skin.

Danger by skin resorption.

**LD/LC50 values that are relevant for classification:**

No data

**Skin irritation or corrosion:**

Causes skin irritation.

**Eye irritation or corrosion:**

Causes serious eye irritation.

**Sensitization:**

No sensitizing effect known.

**Germ cell mutagenicity:**

No effects known.

**Carcinogenicity:**

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

**Reproductive toxicity:**

No effects known.

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**Specific target organ system toxicity - repeated exposure:**

Causes damage to the kidneys, the liver, the respiratory system, the blood tissue, the endocrine system and the immune system system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

**Specific target organ system toxicity - single exposure:**

No effects known.

**Aspiration hazard:**

No effects known.

**Additional toxicological information:**

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

**SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:**

No further relevant information available.

**12.2 Persistence and degradability**

No further relevant information available.

**12.3 Bioaccumulative potential**

No further relevant information available.

**12.4 Mobility in soil**

No further relevant information available.

**Ecotoxicological effects:**

Very toxic for fish

**Remark:****Additional ecological information:****General notes:**

Do not allow material to be released to the environment without proper governmental permits.  
Water danger class 3 (Self-assessment): extremely hazardous for water.  
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.  
Danger to drinking water if even extremely small quantities leak into soil.  
Also poisonous for fish and plankton in water bodies.  
May cause long lasting harmful effects to aquatic life.  
Avoid transfer into the environment.  
Very toxic for aquatic organisms

**12.5 Results of PBT and vPvB assessment****PBT:**

Not applicable.

**vPvB:**

Not applicable.

**12.6 Other adverse effects**

No further relevant information available.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation**

Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.  
Consult state, local or national regulations for proper disposal.

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

Disposal must be made according to official regulations.

**SECTION 14: Transport information****UN-Number****ADR, IMDG, IATA**

UN2929

**14.2 UN proper shipping name****ADR****IMDG**

2929 TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (Tri-n-butyltin hydride)  
TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (Tri-n-butyltin hydride),  
MARINE POLLUTANT  
TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (Tri-n-butyltin hydride)

**IATA****14.3 Transport hazard class(es)****ADR****Class****Label****IMDG**

6.1 (TF1) Toxic substances.  
6.1+3

**Class****Label****IATA**

6.1 Toxic substances.  
6.1+3

**Class****Label**

6.1 Toxic substances.  
6.1+3

**Packing group****ADR, IMDG, IATA**

II

**14.5 Environmental hazards:****Marine pollutant:**

Environmentally hazardous substance, liquid; Marine Pollutant  
Yes (P)  
Symbol (fish and tree)

**14.6 Special precautions for user****Kemler Number:**

Warning: Toxic substances.  
63

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC****Code**

Not applicable.

**Transport/Additional information:****ADR****Excepted quantities (EQ):**

E4

**Limited quantities (LQ)**

100 ml

**Tunnel restriction code**

D/E

**UN "Model Regulation":**

UN2929, TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. (Tri-n-butyltin hydride), 6.1 (3), II

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

Substance is listed.

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**Standard for the Uniform Scheduling of Drugs and Poisons National regulations**  
**Information about limitation of use:**

Substance is not listed.

Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.

**Water hazard class:**  
**Other regulations, limitations and prohibitive regulations**  
**ELINCS (European List of Notified Chemical Substances)**

Water danger class 3 (Self-assessment): extremely hazardous for water.

Substance is not listed.

**Substances of very high concern (SVHC) according to REACH, Article 57**

Substance is not listed.

**REACH - Pre-registered substances**  
**15.2 Chemical safety assessment:**

Substance is listed.

A Chemical Safety Assessment has not been carried out.

**SECTION 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.

**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 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)  
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 P: Marine Pollutant  
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent

DE/E