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

1.1 Product identifiers

<table>
<thead>
<tr>
<th>Product name</th>
<th>Tributyltin chloride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>T50202</td>
</tr>
<tr>
<td>Brand</td>
<td>Aldrich</td>
</tr>
<tr>
<td>Index-No.</td>
<td>050-008-00-3</td>
</tr>
<tr>
<td>REACH No.</td>
<td>A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1461-22-9</td>
</tr>
</tbody>
</table>

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Company Ltd.
            The Old Brickyard
            NEW ROAD, GILLINGHAM
            Dorset
            SP8 4XT
            UNITED KINGDOM

<table>
<thead>
<tr>
<th>Telephone</th>
<th>+44 (0)1747 833000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fax</td>
<td>+44 (0)1747 833313</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:eurtechserv@sial.com">eurtechserv@sial.com</a></td>
</tr>
</tbody>
</table>

1.4 Emergency telephone number

Emergency Phone #: +44 (0)1747 833100

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

- Acute toxicity, Oral (Category 3), H301
- Acute toxicity, Dermal (Category 4), H312
- Skin irritation (Category 2), H315
- Eye irritation (Category 2), H319
- Skin sensitisation (Category 1), H317
- Specific target organ toxicity - repeated exposure (Category 1), H372
- Acute aquatic toxicity (Category 1), H400
- Chronic aquatic toxicity (Category 1), H410

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501 Dispose of contents/container to an approved waste disposal plant.

Supplemental Hazard Statements none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms:

TBTC
Tributylchlorotin

Formula: C₁₂H₂₇ClSn
Molecular weight: 325.51 g/mol
CAS-No.: 1461-22-9
EC-No.: 215-958-7
Index-No.: 050-008-00-3

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tributyltin chloride</td>
<td>Acute Tox. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H315, H319, H317, H372, H400, H410</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1461-22-9</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>215-958-7</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>050-008-00-3</td>
<td></td>
</tr>
</tbody>
</table>
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas, Tin/tin oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

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

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value of exposure</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tributyltin chloride</td>
<td>1461-22-9</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>UK. EH40 WEL - Workplace Exposure Limits</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
<td>UK. EH40 WEL - Workplace Exposure Limits</td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td></td>
<td>Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td></td>
<td>Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td></td>
<td>Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Body Protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: clear, liquid
   Colour: light yellow

b) Odour
   No data available

c) Odour Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   No data available

f) Initial boiling point and boiling range
   171 - 173 °C at 33 hPa - lit.

g) Flash point
   113 °C - closed cup

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or explosive limits
   No data available

k) Vapour pressure
   0.00 hPa at 25 °C

l) Vapour density
   No data available

m) Relative density
   1.2 g/cm3 at 25 °C

n) Water solubility
   No data available

o) Partition coefficient: n-octanol/water
   No data available

p) Auto-ignition temperature
   No data available

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

s) Explosive properties
   No data available

t) Oxidizing properties
   No data available

9.2 Other safety information
No data available
SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 129 mg/kg
LD50 Oral - Rat - male - 101 mg/kg
(OECD Test Guideline 401)
LD50 Oral - Rat - female - 113 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male - 4 h - < 0.078 mg/l
Remarks: Cyanosis

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes. - 24 h

Respiratory or skin sensitisation
- Mouse
Result: May cause sensitisation by skin contact.
(see user defined free text)

Germ cell mutagenicity
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard
No data available

Additional Information
RTECS: WH6820000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish
LC50 - Oncorhynchus mykiss (rainbow trout) - 0.011 - 0.015 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 0.018 mg/l - 48 h

Toxicity to algae
mortality NOEC - Phyllospora comosa - < 0.001 µg/l - 96 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential
Bioaccumulation Poecilia reticulata (guppy) - 14 d - 0.54 µg/l
Bioconcentration factor (BCF): 460

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2788 IMDG: 2788 IATA: 2788

14.2 UN proper shipping name
ADR/RID: ORGANOTIN COMPOUND, LIQUID, N.O.S. (Tributyltin chloride)
IMDG: ORGANOTIN COMPOUND, LIQUID, N.O.S. (Tributyltin chloride)
IATA: Organotin compound, liquid, n.o.s. (Tributyltin chloride)

14.3 Transport hazard class(es)
ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4 Packaging group
ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards
ADR/RID: yes IMDG Marine pollutant: yes IATA: no
14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

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

Tributyltin chloride CAS-No.: 1461-22-9
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)
Shall not be placed on the market, or used, as a substance or in mixtures

Tributyltin chloride CAS-No.: 1461-22-9
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

Tributyltin chloride CAS-No.: 1461-22-9
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

Tributyltin chloride CAS-No.: 1461-22-9
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

Tributyltin chloride CAS-No.: 1461-22-9
Countries for which no notification is required: Please refer to PIC circular at www.pic.int/

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Further information
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