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

1.1 Product Identifier
Chemical Name: Tributyltin Chloride-d27

Catalogue #: T773812

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against
Product Uses: To be used only for scientific research and development. Not for use in humans or animals.

1.3 Details of the Supplier of the Safety Data Sheet
Company: Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone: +14166659696
FAX: +14166654439
Email: orders@trc-canada.com

1.4 Emergency Telephone Number
Emergency #: +1(416) 665-9696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)
- D1B: Toxic Material Causing Immediate and Serious Toxic Effects
  Toxic by Ingestion
- D2A: Very Toxic Material Causing Other Toxic Effects
  Chronic Toxicity
- D2B: Toxic Material Causing Other Toxic Effects
  Moderate Skin/Eye Irritant

WHMIS Symbols (Canada)

2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)
- Acute Toxicity, Oral (Category 3)
- Acute Toxicity, Dermal (Category 4)
- Skin Irritation (Category 2)
- Serious Eye Irritation (Category 2A)
- Sensitisation, Skin (Category 1)
- Specific Target Organ Toxicity, Repeated Exposure (Category 1)
- Hazardous to the Aquatic Environment, Acute Hazard (Category 1)
- Hazardous to the Aquatic Environment, Long-Term Hazard (Category 1)

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)
- Signal Word: Danger

GHS Hazard Statements

This Safety Data Sheet contains 16 sections. All 16 sections must be present for this document to be valid.
If medical attention is required, show this safety data sheet to the doctor.

### If Inhaled

If inhaled, move casualty to fresh air. If not breathing, give artificial respiration and consult a physician.

### In Case of Skin Contact

Remove contaminated clothing and shoes. 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. Continue rinsing eyes during transport to hospital.

### If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless

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**GHS Precautionary Statements**

- **P260**: Do not breathe dust/fume/gas/mist/vapours/spray
- **P264**: Wash hands thoroughly after handling.
- **P270**: Do not eat, drink or smoke when using this product.
- **P273**: Avoid release to the environment.
- **P280**: Wear protective gloves/protective clothing/eye protection/face protection.
- **P301/P310**: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- **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.
- **P330**: Rinse mouth.
- **P333/P313**: IF IN RESPIRATORY TRACT NOSE: Rinse with water
- **P352**: Wear protective gloves/protective clothing/eye protection/face protection.
- **P360**: Wash mouth.

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**2.3 Unclassified Hazards/Hazards Not Otherwise Classified**

No data available.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

### 3.1 Substances

- **Molecular Formula**: C_{12}D_{27}ClSn
- **Molecular Weight**: 352.67
- **CAS Registry #**: 1257647-76-9
- **EC#**:

**Synonyms**

- Tri-n-butyltin Chloride-d27; Chlorotri-n-butylstannane-d27; Chlorotributylstannane-d27; Chlorotributyltin-d27; Monochlorotributyltin-d27; NSC 22323-d27; Tri-n-butylchlorostannane-d27; Tri-n-butylchlorotin-d27; Tri-n-butylstannyl chloride-d27; Tributylchlorostannane-d27; Tributylchlorotin-d27; Tributylstannyl chloride-d27; WR 3396-d27;

### 3.2 Mixtures

Not a mixture.

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**4. FIRST AID MEASURES**

### 4.1 Description of First Aid Measures

#### General Advice

If medical attention is required, show this safety data sheet to the doctor.

#### If Inhaled

If inhaled, move casualty to fresh air. If not breathing, give artificial respiration and consult a physician.

#### In Case of Skin Contact

Remove contaminated clothing and shoes. 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. Continue rinsing eyes during transport to hospital.

#### If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless
advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed
No data available.

5. FIREFIGHTING MEASURES

5.1 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, Tin oxides, Hydrogen chloride

5.3 Advice for Firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information
No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

Storage conditions: Hygroscopic, Refrigerator, Under Inert Atmosphere

7.3 Specific End Uses
For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tributyltin</td>
<td>1461-22-9</td>
<td>TWA</td>
<td>0.100000 mg/m3</td>
<td>Canada. British Columbia OEL</td>
</tr>
<tr>
<td>chloride</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks
Contributes significantly to the overall exposure by the skin route.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td></td>
<td>0.200000 mg/m3</td>
<td>Canada. British Columbia OEL</td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td>0.100000 mg/m3</td>
<td>Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)</td>
<td></td>
</tr>
</tbody>
</table>

Substance may be readily absorbed through intact skin

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td></td>
<td>0.200000 mg/m3</td>
<td>Canada. Alberta, Occupational Health and Safety</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Exposure Controls

**Appropriate Engineering Controls**
A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

**Personal Protective Equipment**
All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

**Eye/Face Protection**
Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

**Skin Protection**
Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as “chemical resistant” by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.
Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

**Body Protection**
Fire resistant (Nomex) lab coat or coveralls.

**Respiratory Protection**
Recommended respirators are NIOSH-approved N100 or CEN-approved FFP3 particulate respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance
Clear Colourless Oil

B) Odour
No data available

C) Odour Threshold
No data available

D) pH
No data available

E) Melting Point/Freezing Point
N/A

F) Initial Boiling Point/Boiling Range
No data available

G) Flash point
No data available

H) Evaporation Rate
No data available

I) Flammability (Solid/Gas)
No data available

J) Upper/Lower Flammability/Explosive Limits
No data available

K) Vapour Pressure
No data available

L) Vapour Density
No data available

M) Relative Density
No data available

N) Solubility
Chloroform

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 Information
no data available

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
In the event of fire: See section 5. Other decomposition products: No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity

Oral LD50: Rat - 129 mg/kg

Dermal LD50: No data available.

Inhalation LC50: Rat - 4 h - < 0.078 mg/l

B) Skin Corrosion/Irritation
Moderate skin irritant.

C) Serious Eye Damage/Irritation
Moderate eye irritant.

D) Respiratory or Skin Sensitization
May cause an allergic skin reaction.

E) Germ Cell Mutagenicity
No data available

F) Carcinogenicity
No data available
G) Reproductive Toxicity/Teratogenicity  
No data available

H) Single Target Organ Toxicity - Single Exposure  
Moderate respiratory tract irritation.

I) Single Target Organ Toxicity - Repeated Exposure  
No data available

J) Aspiration Hazard  
No data available

K) Potential Health Effects and Routes of Exposure

Inhalation  
May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion  
Toxic if swallowed.

Skin  
Harmful if absorbed through skin. Causes skin irritation.

Eyes  
Causes eye irritation.

L) Signs and Symptoms of Exposure  
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

M) Additional Information  
RTECS: WH6820000

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 Persistance and Degradability  
No data available.

12.3 Bioaccumulative Potential  
Poecilia reticulata (guppy) - 14 d  
Bioconcentration factor (BCF): 460

12.4 Mobility in Soil  
No data available.

12.5 Results of PBT and vPvB Assessment  
No data available.

12.6 Other Adverse Effects  
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods  
A) Product  
Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging  
Dispose of as above.

C) Other Considerations  
Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number  
Toronto Research Chemicals - T773812  
This Safety Data Sheet contains 16 sections. All 16 sections must be present for this document to be valid.
14.2 UN Proper Shipping Name
DOT (US)/IATA: Organotin compound, liquid, n.o.s. (Tributyltin chloride)
IMDG/ADR/RID: ORGANOTIN COMPOUND, LIQUID, N.O.S. (Tributyltin chloride)

14.3 Transport Hazard Class(es)

14.4 Packing Group
DOT (US): II  IATA: II  IMDG: III  ADR/RID: II

14.5 Environmental Hazards
DOT (US): None  IATA: None  IMDG: None  ADR/RID: None

14.6 Special Precautions for User
None

15. REGULATORY INFORMATION
This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture
A) Canada
   DSL/NDSL Status: This product or a component of this product is registered on the Canadian DSL/NDSL.
B) United States
   TSCA Status: This product or a component is listed on the US EPA TSCA.
C) European Union
   ECHA Status: This product or a component is registered with the EU ECHA.

15.2 Chemical Safety Assessment
No data available

16. OTHER INFORMATION

16.1 Revision History
Original Publication Date: 4/30/2014

16.2 List of Abbreviations
LD50  Median lethal dose of a substance required to kill 50% of a test population.
LC50  Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo  Lowest known lethal dose
TDLo  Lowest known toxic dose
IARC  International Agency for Research on Cancer
NTP   National Toxicology Program
RTECS  Registry of Toxic Effects of Chemical Substances

16.3 Further Information
Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.