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## MATERIAL SAFETY DATA SHEET (MSDS)

### TRIBUTYLAMINE (FOR SYNTHESIS)

#### 1 - Chemical Product

MSDS Name: Tributylamine

Synonym: N,N-Dibutyl-1-butanamine; TNBA; Tri-n-butylamine; Tris-n-butylamin

Cas NO: 102-82-9

Product Coad: SS0119200500

Molecular Formula: (CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>)<sub>3</sub>N

Molecular Weight: 185.1957

#### 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	content	EINECS#
102-82-9	Tributylamine	99	203-058-7

#### 3 - HAZARDS IDENTIFICATION

##### EMERGENCY OVERVIEW

Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Corrosive. Hygroscopic (absorbs moisture from the air).

##### Potential Health Effects

Eye: Causes eye burns. Low vapor concentrations may cause a temporary visual disturbance known as 'blue haze' or 'halo vision'. Causes redness and pain. May cause tearing, conjunctivitis and corneal edema when vapor is absorbed into the tissue of the eye.

Skin: Harmful if absorbed through the skin. Causes skin burns. Causes redness and pain. Chronic exposure may result in sensitization. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color. Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. May cause perforation of the digestive tract. May cause central nervous system effects. May cause systemic effects. Inhalation: May cause severe irritation of the upper respiratory tract with pain, burns, and inflammation. Aspiration may lead to pulmonary edema.

May cause systemic effects. In rare instances, exposure may cause sensitization, resulting in inflammation of the mucous membranes and in eczematous eruptions. Chronic: Effects may be delayed. Repeated or prolonged exposure may cause CNS stimulation.

#### 4 - FIRST AID MEASURES

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure. SPEEDY ACTION IS CRITICAL! Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

#### 5 - FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool.

Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Vapors may be heavier than air.

They can spread along the ground and collect in low or confined areas. May polymerize explosively when involved in a fire. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Combustible material; may burn but does not ignite readily.

Extinguishing Media: Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.

Cool containers with flooding quantities of water until well after fire is out.

#### 6 - ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Do not get water inside containers.

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#### **7 - HANDLING and STORAGE**

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.  
 Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture.

#### **8 - EXPOSURE CONTROLS, PERSONAL PROTECTION**

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.  
 Exposure Limits CAS# 102-82-9: Russia: 1 mg/m<sup>3</sup> TWA Personal Protective Equipment Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.  
 Skin: Wear appropriate protective gloves to prevent skin exposure.  
 Clothing: Wear appropriate protective clothing to prevent skin exposure.  
 Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

#### **9 - PHYSICAL AND CHEMICAL PROPERTIES**

Physical State: Liquid  
 Color: clear, colorless  
 Odor: amine-like  
 pH: 11.5  
 Vapor Pressure: 0.7 mm Hg @ 20 deg C  
 Viscosity: 1.35 cP @ 25 deg C  
 Boiling Point: 216-217 deg C  
 Freezing/Melting Point: -70 deg C  
 Autoignition Temperature: 245 deg C ( 473.00 deg F)  
 Flash Point: 71 deg C ( 159.80 deg F)  
 Explosion Limits, lower: 1.4 vol %  
 Explosion Limits, upper: 6.0 vol %  
 Decomposition Temperature: Not available.  
 Solubility in water: Slightly soluble.  
 Specific Gravity/Density: 0.7780

#### **10 - STABILITY AND REACTIVITY**

Chemical Stability: Stable under normal temperatures and pressures.  
 Conditions to Avoid: Incompatible materials, ignition sources, excess heat, exposure to moist air or water.  
 Incompatibilities with Other Materials: Moisture, strong oxidizing agents.  
 Hazardous Decomposition Products:  
 Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.  
 Hazardous Polymerization: Will not occur.

#### **11 - TOXICOLOGICAL INFORMATION**

RTECS#: CAS# 102-82-9: YA0350000 LD50/LC50:  
 CAS# 102-82-9: Oral, mouse: LD50 = 114 mg/kg; Oral, rabbit: LD50 = 615 mg/kg; Oral, rat: LD50 = 114 mg/kg; Skin, rabbit: LD50 = 250 uL/kg.  
 Oral, rat: LD50 = 114 Carcinogenicity: Tributylamine - Not listed by ACGIH, IARC, or NTP.  
 Other: See actual entry in RTECS for complete information.

#### **12 - ECOLOGICAL INFORMATION**

Other No information available.

#### **13 - DISPOSAL CONSIDERATIONS**

Dispose of in a manner consistent with federal, state, and local regulations.

#### **14 - TRANSPORT INFORMATION**

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**MATERIAL SAFETY DATA SHEET (MSDS)****TRIBUTYLAMINE (FOR SYNTHESIS)**

Shipping Name: TRIBUTYLAMINE

Hazard Class: 6.1  
UN Number: 2542  
Packing Group: II  
IMO  
Shipping Name: TRIBUTYLAMINE  
Hazard Class: 6.1  
UN Number: 2542  
Packing Group: II  
RID/ADR  
Shipping Name: TRIBUTYLAMINE  
Hazard Class: 6.1  
UN Number: 2542  
Packing group: III

**15 - REGULATORY INFORMATION**

European/International Regulations  
European Labeling in Accordance with EC Directives  
Hazard Symbols: T N  
Risk Phrases: R 23/24/25 Toxic by inhalation, in contact with skin  
and if swallowed. R 34 Causes burns.  
R 51/53 Toxic to aquatic organisms, may cause  
long-term adverse effects in the aquatic environment.  
Safety Phrases: S 25 Avoid contact with eyes.  
S 28A After contact with skin, wash immediately with plenty of water.  
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
S 45 In case of accident or if you feel unwell, seek  
medical advice immediately (show the label where possible).  
WGK (Water Danger/Protection) CAS# 102-82-9: 2  
Canada CAS# 102-82-9 is listed on Canada's DSL List.  
CAS# 102-82-9 is listed on Canada's Ingredient Disclosure List. US FEDERAL  
TSCA CAS# 102-82-9 is listed on the TSCA inventory.

**16. Other Information**

**Product Use:** Laboratory Reagent.

In accordance with REACH Regulation (CE) N° 1907/2006 and with CLP Regulation (CE) N° 1272/2008

**DISCLAIMER:**

- **SUVCHEM** Products are to be used as Lab Chemicals for R&D only. Not for drug, medicinal, household or other uses.
- **SUVCHEM** shall not be responsible for any damage resulting from handling or from contact with the above product.
- **SUVCHEM** provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

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