

# SAFETY DATA SHEET

(As per EC Regulation N° 453/2010)

## RUBENAMID T

### 1. PRODUCT IDENTIFICATION

**Company:** GENERAL QUÍMICA S.A.  
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**Commercial name:** RUBENAMID T

**Chemical name:** N-tert-Butyl-2-benzothiazolesulfenamide

**Synonyms:** TBBS, Benzothiazyl-2-tertiary-butyl sulphenamide

**Formula:** C<sub>11</sub>H<sub>14</sub>S<sub>2</sub>N<sub>2</sub>

**CAS#** 95-31-8

**EC#** 202-409-1

**Annex VI (EC) 1272/2008 N°:** Not included.

**REACH Reg.:** 01-2119492625-29-0001

**Emergency telephone (24h):** 91 562 04 20  
National Institute of Toxicology

**Identified uses:** Accelerator for the rubber industry.

**Uses advised against:** NA

### 2. HAZARD IDENTIFICATION

**Classification as per  
Regulation (EC) n.1272/2008**

Skin sensitizer Cat. 1  
Acute aquatic Cat. 1  
Chronic aquatic Cat. 1

**Classification as per  
Dir 67/548/EEC**

Xi Irritant (R43)  
N Dangerous for the environment ( R50/53 )

**Adverse effects:**

For the health:

Repeated or prolonged exposure may cause skin sensitization. Symptoms: reddening, swelling and itching. Inhalation may result in respiratory tract irritation and contact with the eyes may cause irritation. The product exhibits low toxicity when ingested and this route is easily avoided and not frequent.

For the environment: May cause long term adverse effects in the aquatic environment.

**Label elements**

Pictograms



**Signal word:** **Atención / Warning**

**Hazardous statements:** H317: May cause an allergic skin reaction  
H410: Very toxic to aquatic life with long lasting effects.

**Precautionary statements:** P262: Avoid contact with the skin, eyes and clothing.  
P280: Wear protective gloves / clothing / eye / face protection.  
P501: Dispose of contents/container in accordance with national regulations.  
P273: Avoid release to the environment.

**Other hazards:**

The potential of creating an explosive dust cloud exists.  
The product does not meet the criteria to be considered PBT or vPvB.

### 3. COMPOSITION

Component	CAS #	Range %
N-tert-Butyl-2-benzothiazole sulfenamide	95-31-8	> 95
Mercaptobenzothiazole disulfide	120-78-5	< 0.5
tert-Butylamine	75-64-9	< 0.5
White mineral oil	8042-47-5	1 - 2

### 4. FIRST AID MEASURES

<b>Inhalation:</b>	Move the affected person to fresh air. If breathing is difficult, give oxygen and seek immediate medical attention.
<b>Ingestion:</b>	Seek immediate medical attention. Do not induce vomiting unless told to do so by a poison control centre or doctor. Never administer anything by mouth to an unconscious person.
<b>Contact with the skin:</b>	Remove contaminated clothing and thoroughly wash the affected parts of the body with soap and water. Seek medical attention if irritation persists. Wash contaminated clothing thoroughly before reuse.
<b>Contact with the eyes:</b>	Flush immediately with plenty of water for at least 15 min. holding the eyelids open. Seek medical attention if irritation persists after washing. Remove contact lenses immediately if worn, unless they have adhered to eyes.
<b>Notes to Physician:</b>	Provide supportive care and treatment based on the patient's reactions. Give special attention to breathing difficulties.

### 5. FIRE FIGHTING MEASURES

<b>Extinguishing media:</b>	Use water spray, carbon dioxide, foam or dry powder.
<b>Special recommendations:</b>	Fight fire from a safe distance and from a protected location. Use water spray to cool surfaces exposed to the fire. Avoid the presence of airborne dust because it is combustible. Avoid discharge into drains or watercourses.
<b>Protective equipment</b>	Fire-fighting personnel must wear approved protective clothing for fire fighting and self-contained breathing apparatus
<b>Additional hazards associated with the fire</b>	If the product burns, it emits toxic gases (carbon monoxide and dioxide, oxides of sulphur and of nitrogen).

### 6. ACCIDENTAL RELEASE MEASURES

<b>Environmental precautions:</b>	Avoid discharge to sewers and public waterways. The product may cause long term adverse effects to the aquatic environment.
<b>Cleanup:</b>	Solid spillages are collected with shovels or other means and placed into sealed plastic bags or drums for later recycling or managed as waste.
<b>Personal precautions:</b>	Avoid direct contact with the product and inhalation of vapours from the hot product. Keep nonessential personnel away. Ventilate closed spaces before entering.
<b>Personal protection:</b>	Use of safety goggles, gloves and protective clothing of a suitable material. Use of respiratory protective mask with filter in the presence of dust and self-contained breathing apparatus in the presence of vapours from the hot product

## 7. HANDLING & STORAGE

<b>Handling:</b>	<p>Do not eat, drink or smoke while handling the product. Use appropriate protective equipment to avoid direct contact or inhalation of the product and avoid generating dust. Eliminate all ignition sources in the material handling area: sparks, flames, static electricity and other heat sources.</p> <p>Avoid contact with the skin, eyes and clothing. Reseal containers containing unused product. Wash hands with a neutral soap after handling work has finished.</p> <p>Handle the product in areas with efficient ventilation systems.</p>
<b>Storage:</b>	<p>Store the product in a cool, dry, well-ventilated area. Store protected from direct sunlight and away from strong oxidizers.</p> <p>Stored in locations equipped with fire fighting equipment.</p> <p>At temperatures above 40°C and/or in high humidity conditions the product gradually decomposes emitting irritant vapours (tert-Butylamine).</p> <p>Incompatible Materials: Strong reducing agents, oxidizers, strong acids and alkalis.</p>

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

<b>Exposure controls:</b>	Particulates not otherwise classified (PNOC): <ul style="list-style-type: none"><li>- Inhalable particulate: 10 mg/m<sup>3</sup></li><li>- Respirable particulate: 3 mg/m<sup>3</sup></li></ul>
<b>DNELs calculated for workers</b>	<ul style="list-style-type: none"><li>-Acute dermal: 534 mg/kg body weight/day</li><li>-Acute Inhalation: 14 mg/m<sup>3</sup></li><li>-Chronic dermal: 67 mg/kg body weight/day</li><li>-Chronic Inhalation: 14 mg/m<sup>3</sup></li></ul> <p>The product is a moderate skin sensitizer for which has not been possible to establish a dose response relationship.</p>
<b>Appropriate engineering controls</b>	Ensure adequate ventilation and extraction systems in the workplace. Have eye wash systems and showers in the workplace.
<b>Personal protective equipment:</b>	<p><u>Respiratory</u>: Full-face protective mask with filter.</p> <p><u>Eye</u>: Approved safety goggles</p> <p><u>Skin</u>: Gloves (rubber, PVC, polychloroprene). Long sleeve overall and appropriate footwear to avoid contact with skin.</p>
<b>Hygiene measures in the workplace</b>	Shower with hot water and soap at the end of the day. Do not use solvents for cleaning the body. Both clothing and equipment should be changed frequently and dry cleaned, check the condition of the gloves to avoid internal contamination and discard if signs of cuts or holes are detected. Use skin creams after work.

## 9. PHYSICAL & CHEMICAL PROPERTIES

<b>Appearance</b>	Solid light cream colour	<b>Vapour pressure</b>	2.1*10 <sup>-6</sup> hPa at 25°C
<b>Odour</b>	Characteristic of amine	<b>Vapour density</b>	NA
<b>pH</b>	NA	<b>Relative density:</b>	1.29 g/cm <sup>3</sup>
<b>Melting point</b>	105-115 °C	<b>Solubility in water</b>	1.74 mg/l at 20°C and pH 7.6
<b>Boiling point</b>	Decomposes before boiling	<b>Partition coefficient n-octanol/water</b>	Log Pow: 3.36 at 25°C and pH 7
<b>Flash point</b>	165°C ( Cleveland Open Cup )	<b>Autoignition temperature</b>	340 - 380°C ( for powder )
<b>Evaporation rate</b>	NA	<b>Decomposition temp.</b>	207°C
<b>Flammability:</b>	Not readily flammable	<b>Viscosity</b>	NA

## 9. PHYSICAL & CHEMICAL PROPERTIES (cont.)

<b>Combustion properties:</b>	NA	<b>Explosive properties</b>	Explosion class: St2 Kst: 171-273 bar.m/s Lower explosive limit: 20 g/m <sup>3</sup> Minimum ignition energy:<3mJ
<b>Other properties of interest:</b>	Soluble in acetone, ether, alcohols.		

## 10. STABILITY & REACTIVITY

<b>Chemical stability:</b>	The product is stable when stored at room temperature in its original packaging. Stable under normal conditions of use, handling and transport. When the product gets wet, it slowly decomposes releasing tert-Butylamine vapours
<b>Conditions to avoid:</b>	Keep away from heat sources, sparks and flames. Also avoid contact with sources of moisture.
<b>Incompatible Materials:</b>	Oxidizing agents, strong acids and alkalis.
<b>Hazardous decomposition products:</b>	Thermal decomposition generates amines (tert-Butylamine, aniline) and derivatives of a sulphurous nature . In case of combustion see section 5.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute oral toxicity LD<sub>50</sub> (mg/kg):</b>	6,310 mg/kg (rat)
<b>Acute dermal toxicity LD<sub>50</sub> (mg/kg):</b>	> 7,940 mg/kg (rabbit)
<b>Organs affected/routes of exposure:</b>	Eyes, respiratory tract, skin / inhalation, contact.
<b>Ingestion:</b>	While the product is slightly toxic by ingestion, discomfort and/or adverse effects may result from the ingestion of relatively large amounts of product.
<b>Contact with the skin:</b>	The product is mildly irritating to the skin. Symptoms: reddening, swelling and rashes. May cause an allergic skin reaction.
<b>Inhalation:</b>	May cause mild irritation of the upper respiratory tract (mouth, nose and throat). Symptoms may include pain in the nose and throat, coughing and sneezing repeatedly.
<b>Contact with the eyes:</b>	May cause slight irritation to eyes with symptoms typical of conjunctivitis: reddening, swelling, pain and tears.
<b>Medical conditions aggravated by exposure:</b>	Skin and lung diseases. Haematological problems and liver and/or kidney disease. The product or its emissions during use may cause sensitization effects or allergic reactions that may aggravate pre-existing systemic diseases.
<b>Carcinogenicity:</b>	Negative in standard in vitro tests. Neither the product or any of the impurities/additives present in amounts exceeding 0.1% have been classified by NTP, IARC or OSHA as a carcinogen or suspected carcinogen.
<b>Genotoxicity:</b>	Negative for genetic activity for in vitro and in vivo tests using mammalian cells.
<b>Reproductive toxicity:</b>	No evidence of teratogenicity in animal studies using rats, mice and hamsters.
<b>Other information of interest:</b>	The product generates amine vapour during the vulcanization process which can cause respiratory sensitization, in eyes and skin.

## 12. ECOLOGICAL INFORMATION

<b>Toxicity to fish:</b>	96h-LC <sub>50</sub> (Lepomis macrochirus): 1.2 mg/l 96h-LC <sub>50</sub> (Oncorhynchus mykiss): 1.6 mg/l 96h-LC <sub>50</sub> (Pimephales promelas): 21 mg/l
<b>Toxicity to algae:</b>	NOEC (72h) (Scenedesmus capricornutum): 0.023 mg/l
<b>Toxicity to invertebrates:</b>	48h-EC <sub>50</sub> (Daphnia magna): >100 mg/l
<b>Degradability:</b>	<u>Abiotic</u> : The product is rapidly degraded by hydrolysis (50% in 8.6 h at pH 7 and 25°C, in 12 h at pH 5 and in 41 h at pH 9) and Photolysis (breakdown by photolysis in water: 50% in less than 1 h). <u>Biotic</u> : Product not readily biodegradable.
<b>Persistence and bioaccumulation</b>	The tests performed with the material indicate that the product is neither bioaccumulative or persistent ( BCF < 20 ). The product does not meet the criteria to be considered PBT or vPvB.
<b>PNEC values</b>	Freshwater: 0.0023 mg/L Aquatic marine water: 0.00023 mg/L Freshwater sediment: 0.018 mg/kg w.w. Marine sediment: 0.0018 mg/kg w.w. Soil: 0.0134 mg/kg w.w. STP: 100 mg/L

## 13. DISPOSAL CONSIDERATIONS

<b>For the product:</b>	Recycle the product whenever possible. If reuse is not possible, dissolve or mix the material with a combustible solvent and burn in an incinerator equipped with an appropriate gas treatment system. In any case, avoid discharge into the environment in an uncontrolled way.
<b>Contaminated containers</b>	Manage as dangerous waste under the laws of the country concerned.
<b>Handling:</b>	Use properly sealed and labelled containers. Used containers should be handled so as not to generate dust during collection, transportation and final disposal.
<b>General Provisions:</b>	The establishments and companies engaged in the recovery, disposal, collection or transportation of waste should comply with European regulations on waste management or other local, regional or national regulations in force.

## 14. TRANSPORT INFORMATION

<b>Land transport:</b>	
<b>ADR/RID class:</b>	9
<b>Hazard ID N°:</b>	90
<b>Packaging group:</b>	III
<b>Substance ID N°:</b>	3077
<b>UN N°:</b>	UN 3077
<b>“Hazard label”:</b>	Hazardous for the environment:
<b>Proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S
<b>Additional information:</b>	<a href="http://www.unece.org/trans/danger/adr/adr_linguistic_e.htm">http://www.unece.org/trans/danger/adr/adr_linguistic_e.htm</a>
<b>Sea transport:</b>	
<b>IMO/IMDG class:</b>	9
<b>Packaging group:</b>	III
<b>UN N°:</b>	UN 3077
<b>EMS:</b>	F-A, S-F
<b>“Hazard label”:</b>	Hazardous for the environment:
<b>Proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S

**Air transport:**

**ICAO-TI/IATA-DGR class:** 9  
**Packaging group:** III  
**UN N°:** UN 3077  
**Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S

## 15. REGULATORY INFORMATION

**Classification and labelling:** See Section 2 of this MSDS which indicates the hazard and precautionary statements.

**Regulation (EC) 1907/2006** Registered N°: 01-2119492625-29-0001

**Other regulations:** The product is listed in the following inventories:  
USA (TSCA), Canada (DSL), EU (EINECS), Japan (ENCS), Korea (ECL),  
Australia (AICS), New Zealand (NZ), Philippines (PICCS), China (CLECS).

Regulated for rubber articles intended for repeated use in contact with food, as per  
US FDA 21 CFR 177.2600

The product is not listed as subject to the Seveso Directive, however due to the current  
classification, it is should be considered as category 9i.

**Chemical safety assessment:** Both the chemical safety report as well as the guide for safe use are included in the registration  
dossier submitted to ECHA. An extract is available upon request

## 16. OTHER INFORMATION

**Legislation applicable to the material safety data sheets:** This MSDS has been prepared in accordance with Regulation (EC) No. 453/2010 developed in  
Annex II "Guide to the Compilation of Safety Data Sheets" of Regulation (EC) No. 1907/2006  
(REACH).

**Text for the hazard statements (H phrases) referred to in section 2** H317: May cause an allergic skin reaction  
H410: Very toxic to aquatic life with long lasting effects.

**Background:** Date of issue: May 31th. 2011  
Revision: N°2 in accordance with Regulation (EC) 453/2010  
Prepared by: GENERAL QUIMICA,S.A. Technical Services Dept.  
Modifications with respect previous revision: Section 12

The information contained in this Safety Data Sheet relates only to the product mentioned in section 1 not necessarily being applicable to other products of a similar chemical nature. The information represents our best information at this time and is provided in good faith without implying any type of guarantee. It is the user's responsibility to ensure that the information is suitable and complete for the specific use to which the substance will be applied.

End of the MSDS