MATERIAL SAFETY DATA SHEET

(According to Regulation EC No 1907/ – REACH)

RUBENAMID T

1. PRODUCT IDENTIFICATION

Company: GENERAL QUÍMICA S.A. **Address:** **01213 COMUNIÓN-LANTARÓN** **ÁLAVA** **Tel. # 945 332 145** **Fax # 945 332 888** **e-mail address:** **SDSgequisa@repsolypf.com**	**Commercial name:** RUBENAMID T **Chemical name:** N-tert-butyl-benzothiazolesulfenamide. **Synonyms:** TBBS/EGC N-(1,1-dimethylethyl)-2-benzothiazolsulfenamide.	
	Molecular formula: $C_{11}H_{14}S_2N_2$	**CAS #** 95-31-8
Instituto Nacional de Toxicología: **Emergency telephone: 91 562 04 20**	**EC (EINECS) #** 202-409-1	**Annex I (Dir. 67/548/EC) #** NP

2. HAZARD IDENTIFICATION

PHYSICAL / CHEMICAL	TOXICITY / SYMPTOMS
In contact with acids, it emits highly toxic and irritant fumes (sulphur and nitro compounds).	**Inhalation:** The product may cause respiratory tract irritation. **Ingestion:** This route of exposure is easy to avoid and not frequent. The product is not toxic by ingestion. **Contact skin and eyes:** The product is moderately irritating to eyes. It is not irritating to skin, but may cause sensitization by skin contact.
When heated, it emits highly toxic and irritant fumes (sulphur and nitro compounds).	**General toxic effects:** May cause sensitization by skin contact.

3. COMPOSITION

General composition: N-tert-butyl-benzothiazolesulfenamide with a degree of purity 94% min.

Dangerous components:	**Range %**	**Classification**	
		R	**S**
N-tert-butyl-benzothiazolesulfenamide		R43 R53	S24-37-60-61

4. FIRST AID

Inhalation: Move victim to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion/aspiration: Induce vomiting. Call for medical attention

Contact skin: Remove powder contaminated clothing and wash affected skin area with water and soap. If irritation persists after washing, obtain medical attention.

Contact eyes: Hold eyelids open and flush with large amounts of water for 15 min. Obtain medical attention

General measures: Call for medical attention.

5. FIRE-FIGHTING MEASURES

Extinguishing agents: Foams, dry chemicals, CO_2, water spray.

Non suitable extinguishing agents: NP

Combustion products: CO_2, H_2O, CO (in defect of air), SO_2 and NO_x.

Special measures: Move containers from fire area if possible without risk. Apply cooling water to sides of containers exposed to flames until well after fire is out. Stay away from containers. For massive fire in cargo area, use unmanned hose holder or monitor nozzles to avoid risks. If the fire is impossible to control, withdraw from area and let fire burn. Consult and follow existing emergency standard procedures.

Special hazards: The product is a flammable solid and it burns easily in fire. When heated, the product emits highly toxic fumes of sulphur and nitro compounds.

Protective equipment: Heat-resistant suit and gloves. Self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Precautions for the environment: Avoid spills to sewer and drains and dispersion of the product.	**Personal precautions:** Avoid direct contact or inhalation with the powdery product. Keep unnecessary people away. Ventilate closed spaces before entering.
Cleanup methods: Ventilate area of spill or leak. Stop leak if you can without risk. Solid spills are shovelled into closed plastic bag or containers for later recovery or disposal. Caustic soda to clean the area may be used.	**Personal protection:** In presence of powdery product, use full-face protective mask with filter. In presence of vapours from hot product self-contained breathing apparatus (SCBA). Wear goggles, and rubber overclothing, including gloves.

7. HANDLING AND STORAGE

Handling:

General precautions: Do not smoke, drink, or eat during handling. Wash hands using liquid detergent. Wear appropriate protective clothing to avoid direct contact or inhalation of the product. Eliminate all sources of ignition from areas where the material is handled or used; no sparks, or flames in hazard area.

Specific conditions: Good local exhaust ventilation. Protective mask in presence of powdery product.

Uses: Accelerator for rubber vulcanization.

Storage:

Temperature and decomposition products: At high temperatures or/and with humidity, it decomposes emitting SH_2 or mercaptanes.

Dangerous reactions: Hydrolysis in presence of acids.

Storage conditions: Storage at room temperature. Fire-fighting measures in storage area. Eliminate all possible sources of ignition. Cool and well ventilated places. Containers properly labelled and sealed.

Incompatible materials: Oxidants and acid materials.

8. PERSONAL PROTECTION/EXPOSURE CONTROLS

Personal protection:

Respiratory protection: In presence of high concentrations from powdery product, full-face protective mask with filter.

Eye protection: Safety goggles or face-shield to avoid powdery product.

Skin protection: Gloves and appropriate clothing (rubber suit)

Other protective equipment: Eyes washers and showers in working area.

General precautions: Local exhaust ventilation. Do not smoke and avoid open flames or other ignition sources. Avoid prolonged contact or/and inhalation.

Specific hygiene measures: Washing/Showering facilities with a non-solvent based skin cleaner, hot water and soap must be provided and used. Overalls should be changed frequently and dry cleaned. Grossly contaminated clothing should be changed immediately. The condition of gloves should be checked before use for sings of wear and internal contamination. Use skin reconditioning cream after work.

Exposure controls: Particulates not otherwise classified (PNOC):
Inhalable particulate (1989): 10 mg/m^3; containing no asbestos and <1% crystalline silica.
Respirable particulate (1995): 3 mg/m^3; containing no asbestos and <1% crystalline silica.

9. PHYSICAL AND CHEMICAL PROPERTIES	
Appearance: Powdery/Granulated.	**pH:**
Colour: Cream	**Odour:** Characteristic amine
Boiling range: NP	**Melting point:** 103-105 °C
Flash point:	**Autoignition temperature:**
Explosive properties: NP	**Oxidizing properties:** NP
Vapour pressure: NP	**Density:** 1.29 g/cm^3 20 °C
Surface tension: NP	**Partition coefficient (n-octanol/water):**
Water solubility: Insoluble	**Solubility:** Acetone, chloroform, alcohol, benzene, CL_4C.
Other data: Mol weight: 238.39 g/mol	

10. STABILITY AND REACTIVITY	
Stability: Stable at room temperature.	**Conditions to avoid:** Humidity, high temperatures, flames.
Materials to avoid: In contact with acid or acid fumes, it emits highly toxic fumes or sulphur compounds.	
Hazardous decomposition/combustion products: Decomposition products: Mercaptanes, SH_2. Combustion products: CO (in defect of air), CO_2, SO_x, and NOx.	
Polymerization risk: NP	**Conditions to avoid:** NP

11. TOXICOLOGICAL INFORMATION
Routes of exposure: Contact with skin and eyes. Inhalation of the powdery product. Ingestion is not frequent.
Acute and chronic effects: The product is moderately irritating to eyes. It is not irritating to skin, but it may cause sensitization by skin contact. LD_{50} >7940 mg/kg (skin-rabbit).
Carcinogenicity: NP
Reproductive toxicity: NP
Medical conditions which increase hazard to exposure: NP

12. ECOLOGICAL INFORMATION

Pollutant potential:

Persistence and degradability: There are no data concerning the persistence and degradability of the product in natural systems.

Mobility/bioaccumulative potential: No data on the bioacumulation for the product are found in literature. However, based on its insolubility in water it is not expected to appreciably bioconcentrate

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

13. DISPOSAL CONSIDERATIONS

Disposal methods (surplus): Recycling and recovery of the material when possible.

Waste: Solids and liquids from industrial processes

Disposal: Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Handling: Labelled and sealed containers.
EC provisions: Companies which recover, dispose, store, transport or handle waste should comply with Dir. 91/156/EEC on waste or other local, national or community provisions.

14. TRANSPORT INFORMATION

Special precautions: Stable at room temperature and during transport. To avoid spilling, transport in secure containers. Use properly labelled and sealed containers.

Additional information:	ADR / RID: NP
UN number: NP	IATA-DGR: NP
Hazard identification number: NP	IMDG: NP

15. REGULATORY INFORMATION

CLASSIFICATION	LABELLING
	Symbols: Xi
Recommended:	**Phrases R:**
R43	R43: May cause sensitization by skin contact.
R53	R53: May cause long-term adverse effects in the aquatic environment.
	Phrases S:
	S24: Avoid contact with skin.
	S37: Wear suitable gloves.
	S60: This material and its container must be disposed of as hazardous waste.
	S61: Avoid release to the environment. Refer to special instructions/safety data sheets.

Other regulations: This product is listed in the Chemical Inventory TSCA (EPA).

16. OTHER INFORMATION

Data bases consulted:

EINECS: European Inventory of Existing Commercial Substances.
TSCA: Toxic Substances Control Act, US Environmental Protection Agency
HSDB: US National Library of Medicine.
RTECS: US Dept. of Health & Human Services

R Phrases shown in the document:

R43: May cause sensitization by skin contact.
R53: May cause long-term adverse effects in the aquatic environment.

Legislation consulted:

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Dir. 67/548/EEC about classification, labelling and packaging of dangerous substances (including amendments and adaptations in force).
Dir. 1999/45/EC about classification, labelling and packaging of dangerous preparations (including amendments and adaptations in force).
Dir. 91/689/EEC dangerous waste; Dir. 91/156/EEC waste management.
Royal Decree 363/95: Regulation about notification of new substances and classification, packaging and labelling of dangerous substances.
Royal Decree 255/2003: Regulation about classification, packaging and labelling of dangerous preparations.
European Agreement concerning the international carriage of dangerous goods by road (ADR).
Regulation on the international transport of dangerous goods on the railway. (RID)
International maritime code of dangerous goods. (IMDG)
International Air Transport Association (IATA) regulation pertaining to air shipment.

GLOSSARY:

CAS: Chemical Abstract Service
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists.
TLV: Threshold Limit Value
TWA: Time Weighted Average
STEL: Short-term Exposure Level
REL: Recommendable Exposure Limit
PEL: Permissible Exposure Limit
INSHT: Instituto Nal. de Seguridad e Higiene en el Trabajo
VLA-ED: Valor Límite Ambiental – Exposición Diaria
VLA-EC: Valor Límite Ambiental – Exposición Corta
LD_{50}: Lethal Dose Medium
LC_{50}: Lethal Concentration Medium
EC_{50}: Effective Concentration Medium
IC_{50}: Inhibitory Concentration Medium
BOD: Biological Oxygen Demand.
NP: Not Pertinent
| : Changes from the last revision

The information given in this document has been compiled based on the best existing information sources, latest available knowledge and according to the current requirements on classification, packaging and labelling of hazardous substances. It does not imply the information is exhaustive or accurate in all cases. It is the user's responsibility to determine the validity of the information contained in this Material Safety Data Sheet to apply depending on the case.