

**MATERIAL SAFETY DATA SHEET**  
(According to Regulation EC No 1907/2006 – REACH)

**RUBENAMID C**

1. PRODUCT IDENTIFICATION		
<b>Company:</b> GENERAL QUIMICA S.A.  <b>Address:</b> 01213 COMUNION-LANTARON ALAVA  <b>Tel. #</b> 945 332 145 <b>Fax #</b> 945 332 888 <b>e-mail address:</b> SDSgequisa@repsolypf.com	<b>Commercial name:</b> RUBENAMID C <b>Chemical name:</b> N-cyclohexyl-2-benzothiazolesulfenamide.	
	<b>Synonyms:</b> Benzothiazyl-2-cyclohexylsulfenamide, CBS.	
	<b>Uses:</b> Accelerator for rubber vulcanization.	
	<b>Molecular formula:</b> $C_{13}H_{16}S_2N_2$	<b>CAS #</b> 95-33-0
<b>Instituto Nacional de Toxicología:</b> <b>Emergency telephone:</b> 91 562 04 20	<b>EC (EINECS) #</b> 202-411-2	<b>Annex I (Dir. 67/548/EEC) #</b> 613-136-00-6

2. HAZARD IDENTIFICATION	
PHYSICAL / CHEMICAL	TOXICITY / SYMPTOMS
Flammable solid.	<b>Inhalation:</b> Long-term exposures may cause respiratory tract irritation.  <b>Ingestion/aspiration:</b> This route of exposure is easy to avoid, and not frequent. The product has a low toxicity by ingestion. LD <sub>50</sub> : 5300 mgr/kg (oral-rat)  <b>Contact skin/eyes:</b> Powdery product is moderately irritating to eyes. May cause sensitization by skin contact. LD <sub>50</sub> : >7940 mg/kg (skin-rabbit).  <b>General toxic effects:</b> May cause sensitization by skin contact.
In acid or alkali media, it emits highly toxic and irritant fumes (sulphur compounds).	
The product may form an explosive dust cloud. (Dust explosion class St2)	

3. COMPOSITION			
<b>General composition:</b> N-cyclohexyl-2-benzothiazolesulfenamide with a degree of purity 94% min.			
Dangerous components:	Range %	Classification	
		R	S
N-cyclohexyl-2-benzothiazolesulfenamide	94 min.	R43 N; R50/53	S24-37-60-61

#### 4. FIRST AID

**Inhalation:** Move the affected person to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

**Ingestion/aspiration:** It is not frequent, if occurs, call for medical attention.

**Contact skin:** Remove powder contaminated clothing and wash with water and soap affected skin area. Obtain medical attention.

**Contact eyes:** Hold eyelids open and flush with large amounts water for 15 min. If irritation persists after washing, obtain medical attention.

**General measures:** Call for medical attention.

#### 5. FIRE-FIGHTING MEASURES

**Extinguishing agents:** Foams, dry chemicals, CO<sub>2</sub>, water spray.

**Non suitable extinguishing agents:** NP

**Combustion products:** CO<sub>2</sub>, H<sub>2</sub>O, CO (in defect of oxygen), SO<sub>2</sub> and NO<sub>x</sub>.

**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. The product may form an explosive dust cloud. When heated the product over decomposition temperature, it emits irritating and toxic vapours.

**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. The product is very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Personal precautions:** Avoid direct contact or inhalation of the product. Keep unnecessary people away. Ventilate closed spaces before entering.

**Cleanup methods:** Solid spills are shovelled into closed plastic bag or containers for later recovery or disposal.

**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) is recommended. 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 contact or inhalation of the product. The product may form an explosive dust cloud. (Dust explosion class St2). 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 temperatures higher than 40 °C or/and with humidity, it decomposes emitting SH<sub>2</sub> or mercaptanes.

*Dangerous reactions:* Hydrolysis in acid or alkali media.

*Storage conditions:* Storage at room temperature. Protect containers against physical damage and fire with fire-fighting measures in storage area. Eliminate all possible sources of ignition. Cool and well ventilated places. Containers properly labelled and sealed.

*Incompatible materials:* Concentrated acid and alkali

## 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 (rubber...) and appropriate clothing to avoid skin contact.

*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 signs of internal contamination. Use skin reconditioning cream after work.

### Exposure controls:

Particulates not otherwise classified (PNOC):

Inhalable particulate : 10 mg/m<sup>3</sup>; containing no asbestos and <1% crystalline silica.

Respirable particulate : 3 mg/m<sup>3</sup>; containing no asbestos and <1% crystalline silica.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b> Powdery/Granulated.	<b>pH:</b>
<b>Colour:</b> Cream.	<b>Odour:</b> Amine characteristic.
<b>Boiling point:</b> NP	<b>Melting point:</b> 95 - 102 °C
<b>Flash point:</b>	<b>Autoignition temperature:</b>
<b>Explosive properties:</b> Dust explosion class St2.	<b>Oxidizing properties:</b> NP
<b>Vapour pressure:</b> NP	<b>Density:</b> 1.27 g/cm <sup>3</sup> 20 °C
<b>Surface tension:</b> NP	<b>Partition coefficient (n-octanol/water):</b>
<b>Water solubility:</b> Insoluble.	<b>Solubility:</b> Acetone, chloroform, S <sub>2</sub> C, Cl <sub>4</sub> C.
<b>Other data:</b> Mol weight: 264.41 g/mol	

### 10. STABILITY AND REACTIVITY

<b>Stability:</b> Stable at room temperature.	<b>Conditions to avoid:</b> Humidity, high temperatures, flames.
<b>Materials to avoid:</b> Contact with concentrated acid and alkali	
<b>Hazardous decomposition/combustion products:</b> Combustion products: CO (in defect of oxygen), CO <sub>2</sub> , SO <sub>2</sub> , SO <sub>3</sub> , NO <sub>x</sub> . Decomposition products: SH <sub>2</sub> and mercaptanes.	
<b>Polymerization risk:</b> NP	<b>Conditions to avoid:</b> NP

### 11. TOXICOLOGICAL INFORMATION

<b>Routes of exposure:</b> Contact with skin and eyes. Inhalation of the powdery product. Ingestion is not frequent.
<b>Acute and chronic effects:</b> Powdery product may be moderately irritating to eyes. May cause sensitization by skin contact. LD <sub>50</sub> : 5300 mgr/kg (oral-rat) / LD <sub>50</sub> >7940 mg/kg (skin-rabbit).
<b>Carcinogenicity:</b> NP
<b>Reproductive toxicity:</b> There are data available that indicate that the product may cause adverse effects for reproduction. However from data cannot be to conclude that that this chemical is toxic for the reproduction of humans. TDLo: 400mg/kg (par-rat) (Effect on fertility and effect on fetus).
<b>Medical conditions which increase hazard to exposure:</b> 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 bioaccumulation for the product were found in literature. However, based on its insolubility in water it is not expected to appreciably bioconcentrate.

**Ecotoxicological effects:** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Water hazard class WGK 2 (Wassergefährdungsklasse) (Germany)

## 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. European provisions 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:**

UN number: 3077

ADR / RID: Class 9. Classification code: M7. Packaging group: III

Hazard identification number: 90

IATA-DGR: Class 9. Packaging group: III

Proper shipping name: ENVIRONMENTALLY

IMDG: Class 9. Packaging group: III.

HAZARDOUS SUBSTANCE, SOLID, N.O.S.

## 15. REGULATORY INFORMATION

### CLASSIFICATION

R43  
N; R50/53

### LABELLING

**Symbols:** Xi, N.

**Phrases R:**

R43: May cause sensitization by skin contact.

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

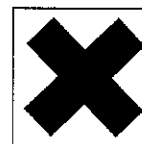
**Phrases S:**

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 (USA), AICS (Australia). This product is according to French legislation, and FDA (USA) used in the manufacture of rubber intended to come into contact with foodstuffs.

Water hazard class WGK 2 (Wassergefährdungsklasse) (Germany)

## 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.  
RTCS: US Dept. of Health & Human Services

### R Phrases shown in the document:

R43: May cause sensitization by skin contact.  
R50/53: Very toxic to aquatic organisms, 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  
VI.A-ED: Valor Límite Ambiental – Exposición Diaria  
VLA-EC: Valor Límite Ambiental – Exposición Corta  
LD<sub>50</sub>: Lethal Dose Medium  
LC<sub>50</sub>: Lethal Concentration Medium  
EC<sub>50</sub>: Effective Concentration Medium  
IC<sub>50</sub>: 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.