

## Material Safety Data Sheet

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Version 1.1

According to 91/155/EEC

## 1 - Product and Company Information

Product Name	R,S(+/-)-QUINUCLIDINYL BENZILATE
Product Number	C002
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

## 2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
R-(-)-3-QUINUCLIDINYL BENZILATE	6581-06-2	None	None
Formula	C21H23NO3		
Molecular Weight	337.4 AMU		
Synonyms	1-Azabicyclo(2.2.2)octan-3-ol, benzilate (9CI) * Benzeneacetic acid, alpha-hydroxy-alpha-phenyl-, 1-azabicyclo(2.2.2)oct-3-yl ester (9CI) * 3-Chinuclidylbenzilate * CS 4030 * 3-(2,2-Diphenyl-2-hydroxyethanoyloxy)-quinuclidin * EA 2277 * QNB * 3-Quinuclidinol benzilate * 3-Quinuclidinyl benzilate * 3-Quinuclidyl benzilate * Ro 2-3308		

## 3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT  
Toxic by inhalation, in contact with skin and if swallowed.

## 4 - First Aid Measures

## AFTER INHALATION

If inhaled, remove to fresh air. If breathing becomes difficult,  
call a physician.

## AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for  
at least 15 minutes. Remove contaminated clothing and shoes.  
Call a physician.

## AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of  
water for at least 15 minutes. Assure adequate flushing by  
separating the eyelids with fingers. Call a physician.

## AFTER INGESTION

If swallowed, wash out mouth with water provided person is

conscious. Call a physician.

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## 5 - Fire Fighting Measures

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### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

### SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

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## 6 - Accidental Release Measures

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### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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## 7 - Handling and Storage

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### HANDLING

Directions for Safe Handling: Do not breathe dust. Avoid all contact. Do not use if skin is cut or scratched. Wash thoroughly after handling.

### STORAGE

Conditions of Storage: Keep tightly closed.  
Store at 2-8°C

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## 8 - Exposure Controls / Personal Protection

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### ENGINEERING CONTROLS

Mechanical exhaust required.

### PERSONAL PROTECTIVE EQUIPMENT

Special Protective Measures: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

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## 9 - Physical and Chemical Properties

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Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	

Vapor Pressure	N/A
SG/Density	N/A
Partition Coefficient	N/A
Viscosity	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
Evaporation Rate	N/A
Bulk Density	N/A
Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	N/A
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	N/A

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## 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions of Instability: Light. Moisture.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Thermal decomposition may produce carbon monoxide, carbon dioxide, and nitrogen oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## 11 - Toxicological Information

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RTECS NUMBER: DD4638000

### ACUTE TOXICITY

LD50

Intraperitoneal

Mouse

103 MG/KG

LD50

Intravenous

Mouse

25 MG/KG

### SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Hallucinogenic effects. Symptoms of exposure include increased heart rate, dry skin and mouth, mydriasis, blurred vision, ataxia, and disorientation and confusion progressing to stupor.

### ROUTE OF EXPOSURE

Skin Absorption: Readily absorbed through skin.

Multiple Routes: May be fatal if inhaled, swallowed, or absorbed through skin. May cause irritation.

### TARGET ORGAN INFORMATION

Central nervous system.

### CONDITIONS AGGRAVATED BY EXPOSURE

The toxicological properties have not been thoroughly investigated.

## CHRONIC EXPOSURE - MUTAGEN

Mouse  
30 MG/KG  
Intraperitoneal  
Cytogenetic analysis

Mouse  
100 MG/KG  
Intraperitoneal  
Dominant lethal test

Hamster  
40 MG/KG  
Intraperitoneal  
6H  
Cytogenetic analysis

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### 12 - Ecological Information

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No data available.

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### 13 - Disposal Considerations

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#### SUBSTANCE DISPOSAL

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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### 14 - Transport Information

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#### RID/ADR

Non-hazardous for road transport.

#### IMDG

Non-hazardous for sea transport.

#### IATA

Non-hazardous for air transport.

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### 15 - Regulatory Information

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#### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: T

Toxic.

R-PHRASES: 23/24/25

Toxic by inhalation, in contact with skin and if swallowed.

S-PHRASES: 22 36/37/39 45

Do not breathe dust. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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### 16 - Other Information

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#### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to

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