

Material Safety Data Sheet

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Version 1.1

According to 91/155/EEC

1 - Product and Company Information

| | |
|-------------------|---|
| Product Name | RYANODINE FROM RYANIA SPECIOSA MINIMUM 95% (HPLC) |
| Product Number | R6017 |
| 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 |
| RYANODINE | 15662-33-6 | 239-732-2 | 613-061-00-9 |
| Formula | C25H35NO9 | | |
| Molecular Weight | 493.6 AMU | | |
| Synonyms | Bonide ryatox * Ground ryania speciosa(vahl) stemwood (alkoloid ryanodine) * Ryanexel * Ryania powder * Ryania speciosa * Ryanicide * Ryanodine | | |

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Harmful in contact with skin and if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

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 immediately.

5 - Fire Fighting Measures

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.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

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.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

| | | |
|--------------|-----------------------|----------------------------|
| 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 |

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

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

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: VM4025000

ACUTE TOXICITY

LDLO
Oral
Human
143 mg/kg

LD50
Oral
Rat
750 mg/kg

LD50
Intraperitoneal
Rat
320 UG/KG

LD50
Oral
Mouse
650 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Muscle weakness. Lungs, Thorax, or
Respiration:Respiratory depression.

LD50
Intraperitoneal
Mouse
100 UG/KG

LD50
Oral
Dog
150 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Muscle weakness. Lungs, Thorax, or
Respiration:Respiratory depression.

LD50
Intravenous
Dog
75 UG/KG

LD50
Oral
Monkey
> 400 mg/kg

LD50
Oral
Rabbit
650 mg/kg

LD50
Skin
Rabbit
> 4000 mg/kg

LD50
Oral
Guinea pig
2500 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Muscle weakness. Lungs, Thorax, or
Respiration:Respiratory depression.

LD50
Oral
Pigeon
2.31 mg/kg

LD50
Oral
Chicken
> 3000 mg/kg

LD50
Oral
Quail
13.3 mg/kg

LD50
Oral
Bird (wild)
1.78 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: CNS depression. Nausea, vomiting, diarrhea.
Damage to the heart.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: Toxic if absorbed through skin.
Eye Contact: May cause eye irritation.
Inhalation: Toxic if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Toxic if swallowed.

TARGET ORGAN INFORMATION

Damage to the heart.

CONDITIONS AGGRAVATED BY EXPOSURE

The toxicological properties have not been thoroughly investigated.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. 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.

14 - Transport Information

RID/ADR

UN#: 2811
Class: 6.1
PG: III
Proper Shipping Name: Toxic solid, organic, n.o.s.

IMDG

UN#: 2811
Class: 6.1
PG: III
Proper Shipping Name: Toxic solid, organic, n.o.s.
Marine Pollutant: No
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 2811
Class: 6.1
PG: III
Proper Shipping Name: Toxic solid, organic, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 613-061-00-9
INDICATION OF DANGER: Xn N
Harmful. Dangerous for the environment.

R-PHRASES: 21/22 50/53

Harmful in contact with skin and if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 36/37 60 61

Wear suitable protective clothing and gloves. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

SWITZERLAND

SWISS POISON CLASS: 4

16 - Other Information

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 appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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