

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product Name: Ryanodine
 Catalog Number: 1329
 CAS Number: 15662-33-6 EC Number: 239-732-2
 Index Number: 613-061-00-9
 IUPAC Name: 1*H*-Pyrrole-2-carboxylic acid, (3*S*,4*R*,4*aR*,6*S*,7*S*,8*R*,8*aS*,8*bR*,9*S*,9*aS*)-dodecahydro-4,6,7,8*a*,8*b*,9*a*-hexahydroxy-3,6*a*,9-trimethyl-7-(1-methylethyl)-6,9-methanobenzo[1,2]pentaleno[1,6-*bc*]furan-8-yl ester

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company:	Tocris Bioscience	Telephone:	+ 44 (0)117 916-3333
	The Watkins Building,	Fax:	+ 44 (0)117 916-3344
	Atlantic Road,	Internet:	www.tocris.com
	Bristol, BS11 9QD, UK	E-mail address:	customerservice@tocris.co.uk

1.4 Emergency Telephone number

Emergency Tel: + 44 (0)117 916-3333 (09.00 - 17.00 GMT)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [GHS/CLP]

Acute Toxicity, oral - Category 4
 Acute Toxicity, dermal - Category 4
 Acute, Aquatic Toxicity - Category 1
 Chronic, Aquatic Toxicity - Category 1

Classification according to EU Directives DSD 67/548/EEC or DPD 1999/45/EC

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

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

Pictogram(s):



Signal word: Warning

Hazard statement(s):

H302 Harmful if swallowed
 H312 Harmful in contact with skin
 H400 Very toxic to aquatic life
 H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s):

P264 Wash hands thoroughly after handling
 P273 Avoid release to the environment
 P280 Wear protective gloves/protective clothing/eye protection/face protection
 P301+312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 P302+352 IF ON SKIN: Wash with soap and water

According to European Directive 67/548/EEC as amended

Hazard symbol(s):



R-phrase(s):

R21 Harmful in contact with skin
 R22 Harmful if swallowed
 R50 Very toxic to aquatic organisms
 R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrase(s):

S28 After contact with skin, wash immediately with plenty of water
 S36/37/39 Wear suitable protective clothing, gloves and eye/face protection
 S46 If swallowed, seek medical advice immediately and show this container or label
 S61 Avoid release to the environment. Refer to special instructions/safety data sheet

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product Name:	Ryanodine	Molecular Weight:	493.55
Formula:	C ₂₅ H ₃₅ NO ₉	EC Number:	239-732-2
CAS Number:	15662-33-6		
Index Number:	613-061-00-9		

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a doctor and show this safety data sheet.

If inhaled

Remove to fresh air and monitor breathing. If breathing becomes difficult, give oxygen. If breathing stops, give artificial respiration. Consult a doctor.

In case of skin contact

Immediately wash skin with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing and shoes and wash before reuse. Consult a doctor.

In case of eye contact

Flush with copious amounts of water for at least 15 minutes. Consult a doctor.

If swallowed

Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

4.3 Indication of immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

In combustion, may emit toxic fumes.

5.3 Precautions for fire-fighters

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

6. ACCIDENTIAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Do not take action without suitable protective clothing - see section 8 of SDS. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapors, mist, dust or gas.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover spillage with suitable absorbent material. Using non-spark tools, sweep up material and place in an appropriate container. Decontaminate spill site with 10% caustic solution and ventilate area until after disposal is complete. Hold all material for appropriate disposal as described under section 13 of SDS.

6.4 Reference to other sections

For required PPE see section 8. For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Use in a chemical fume hood, with air supplied by an independent system. Avoid inhalation, contact with eyes, skin and clothing. Avoid the formation of dust and aerosols. Use in a well-ventilated area. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage, including any incompatibilities.

Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use. Recommended storage temperature: Desiccate at -20°C

7.3 Specific end uses

Use in a laboratory fume hood where possible. Refer to employer's COSHH risk assessment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Use in a fume hood where applicable. Ensure all engineering measures described under section 7 of SDS are in place. Ensure laboratory is equipped with a safety shower and eye wash station.

Personal protective equipment

Eye/face protection

Use appropriate safety glasses.

Skin protection

Use appropriate chemical resistant gloves (minimum requirement use standard BS EN 374:2003). Gloves should be inspected before use. Wash and dry hands thoroughly after handling.

Body protection

Wear appropriate protective clothing.

Respiratory protection

If risk assessment indicates necessary, use a suitable respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	White solid	Vapor pressure	No data available
Odor	No data available	Vapor density	No data available
Odor threshold	No data available	Relative density	No data available
pH	No data available	Solubility(ies)	Soluble to 10 mM in ethanol and to 25 mM in DMSO
Melting / freezing point	No data available	Partition coefficient	No data available
Boiling point / range	No data available	Auto-ignition temperature	No data available
Flash point	No data available	Decomposition temperature	No data available
Evaporation rate	No data available	Viscosity	No data available
Flammability (solid, gas)	No data available	Explosive properties	No data available
Upper / lower flammability or explosive limits	No data available	Oxidising properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended transport or storage conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.

10.4 Conditions to avoid

Heat, moisture.

10.5 Incompatible materials

Strong acids/alkalis, strong oxidising/reducing agents.

10.6 Hazardous decomposition products

In combustion may emit toxic fumes. No known decomposition information.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity

ORL-HMN LDLo: 143mg/kg; ORL-RAT LD50: 750mg/kg; ORL-MUS LD50: 650mg/kg; ORL-DOG LD50: 150mg/kg; ORL-MKY LD50: >400mg/kg; ORL-RBT LD50: 650mg/kg; ORL-GPG LD50: 2500µg/kg; ORL-PGN LD50: 2310µg/kg; ORL-QAL LD50: 13300µg/kg; ORL-BRD LD50: 1780µg/kg

Skin corrosion/irritation

Classified based on available data

Serious eye damage/irritation

Classified based on available data

Respiratory or skin sensitization

Classified based on available data

Germ cell mutagenicity

Classified based on available data

Carcinogenicity

Classified based on available data

Reproductive toxicity

Classified based on available data

Specific target organ toxicity - single exposure

Classified based on available data

Specific target organ toxicity - repeated exposure

Classified based on available data

Aspiration hazard

Classified based on available data

Symptoms / Routes of exposure

Inhalation: There may be shortness of breath with a burning sensation in the throat. Exposure may cause coughing or wheezing. Absorption through the lungs can occur causing symptoms similar to those of ingestion. There may be shortness of breath.

Ingestion: There may be soreness and redness of the mouth and throat. Nausea and stomach pain may occur. Blood may be vomited. There may be vomiting and diarrhea.

Skin: Irritation or pain may occur at the site of contact. There may be redness or whiteness of the skin in the area of exposure. Absorption through the skin may be harmful.

Eyes: There may be pain and redness. The vision may become blurred. The eyes may water profusely. Absorption through the eye may cause effects similar to skin contact and/or ingestion.

Delayed / Immediate Effects: Immediate effects can be expected after short-term exposure.

Additional Information

RTECS No: VM4025000

Exposure may cause irritation of eyes, mucous membranes, upper respiratory tract and skin.

To the best of our knowledge, the chemical, physical and toxicological properties have not been fully investigated

12. ECOLOGICAL INFORMATION**12.1 Toxicity**

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

Transfer to a suitable container and arrange for collection by specialized disposal company in accordance with National legislation.

Contaminated packaging

Dispose of in a regulated landfill site or other method for hazardous or toxic wastes in accordance with National legislation.

14. TRANSPORT INFORMATION

Classified according to the criteria of the UN Model Regulations as reflected in the IMDG Code, ADR, RID and IATA.

14.1 UN-Number

Does not meet the criteria for classification as hazardous for transport.

14.2 UN proper shipping name

Does not meet the criteria for classification as hazardous for transport.

14.3 Transport hazard class(es)

Does not meet the criteria for classification as hazardous for transport.

14.4 Packaging group

Does not meet the criteria for classification as hazardous for transport.

14.5 Environmental hazards

This product is not classified as environmentally hazardous according to the UN Model Regulations, nor a marine pollutant according to the IMDG Code.

14.6 Special precautions for users

No data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**TSCA (Toxic Substance Control Act)**

No data available

SARA 313

No data available

SARA 311/312

No data available

CERCLA Reportable Quantity

No data available

California Proposition 65

No data available

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been made for this product.

16. OTHER INFORMATION**Further Information**

Copyright © 2018 Tocris Bioscience. This company shall not be held liable for any damage resulting from handling or from contact with the above product. This material must only be handled by suitably qualified experienced scientists in appropriately equipped and authorized facilities. The above information is believed to be correct but does not purport to be all inclusive and should be used as a guide only for experienced personnel. Always consult your safety advisor and follow appropriate local and national safety legislature. The absence of warning must not, under any circumstance, be taken to mean that no hazard exists.

End of safety data sheet