

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Trade name**

Ritonavir

**CAS number**

155213-67-5

**EC number**

605-001-5

**Synonyms**

1,3-thiazol-5-ylmethyl N-[(2S,3S,5S)-3-hydroxy-5-[(2S)-3-methyl-2-[[methyl({[2-(propan-2-yl)-1,3-thiazol-4-yl]methyl})carbamoyl]amino]butanamido]-1,6-diphenylhexan-2-yl]carbamate

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

**Relevant identified uses**

Research and development. Laboratory Chemicals. Manufacture of substances.

**Not suitable for use in**

Not suitable for human consumption or veterinary purposes.

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Molekula Group

**Address**

Molekula Ltd, Lingfield Way, Darlington,  
DL1 4XX Darlington  
United Kingdom

**Telephone**

+44 (0) 3302 000 333

**Email**

info@molekula.com

**Web site**

www.molekula.com

**Contact person**

Kevin Banks

**Email**

+44 (0) 7769276927

### 1.4. Emergency telephone number

**Poison center/Additional emergency number**

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

#### Classification

Carcinogenicity, hazard category 2

Skin irritation, hazard category 2

Reproductive toxicity, hazard category 2

Specific Target Organ Toxicity — Repeated exposure, hazard category 2

Acute toxicity, oral, hazard category 4

Acute toxicity, dermal, hazard category 4

Acute toxicity, inhalation, hazard category 4

#### Hazard statements

H302, H312, H315, H332, H351, H361, H373

### 2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H332 Harmful if inhaled.

H351 Suspected of causing cancer.

H361 Suspected of damaging fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## Precautionary statements

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust/fumes/gas/mist/vapours/spray.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P314 Get medical advice/attention if you feel unwell.  
P321 Specific treatment (see on this label).  
P330 Rinse mouth.  
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P302 + P352 IF ON SKIN: Wash with plenty of water/.  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308 + P313 IF exposed or concerned: Get medical advice/attention.  
P332 + P313 If skin irritation occurs: Get medical advice/attention.  
P405 Store locked up.  
P501 Dispose of contents/container to local regulations.  
P362 + P364 Take off contaminated clothing and wash it before reuse.

## 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrases M factor acute M factor chronic	Note
Ritonavir	155213-67-5 605-001-5 - -	100%	Acute Tox. 4 - oral, Acute Tox. 4 - dermal, Acute Tox. 4 - inhala- tion, Carc. 2, Repr. 2, STOT RE 2, Skin Irrit. 2	H302 + H312 + H332, H319, H351, H361, H373 - -	-

## Molecular weight

720.94

## Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel.

#### **Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

#### **Skin contact**

IF ON SKIN: Wash with plenty of water. Continue to rinse for at least 15 minutes and seek medical attention. Get medical advice/attention if you feel unwell.

#### **Eye contact**

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

#### **Ingestion**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

#### **Information for doctors**

First aiders/ medical personnel need to protect themselves.

### 4.2. Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

#### **Inhalation**

Single exposure may cause the following adverse effects: Upper respiratory irritation. Difficulty in breathing.

#### **Skin contact**

Single exposure may cause the following adverse effects: Severe skin irritation.

#### **Eye contact**

Single exposure may cause the following adverse effects: Severe irritation.

#### **Ingestion**

Single exposure may cause the following adverse effects: Severe abdominal pain. Nausea, vomiting.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

#### Unsuitable extinguishing media

No specific fire fighting procedure given.

### 5.2. Special hazards arising from the substance or mixture

Specific hazards:

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

Nitrous gases (NO<sub>x</sub>).

Sulphur oxides

### 5.3. Advice for firefighters

#### Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. For personal protection, see section 8.

### 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

### 6.3. Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

### 6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Preventive handling precautions

For precautions see section 2.2. Wear protective clothing, gloves, eye and face protection. Work under hood. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

## 7.2. Conditions for safe storage, including any incompatibilities

Store at ambient temperature. Store in a dry place. Store in a closed container.

## 7.3. Specific end use(s)

No specific usage precautions noted.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No data available

### 8.2. Exposure controls

#### Personal Protective Equipment Symbols



#### Eye / face protection

Wear eye protection.

#### Hand protection

Wear protective gloves. Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

#### Other skin protection

Wash skin thoroughly after handling.

#### Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

#### Environmental exposure controls

Avoid discharge into drains.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1

Issued: 2024-03-22



## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Physical state

Solid

#### Colour

White / off-white.

#### Odour

Odourless.

#### Melting point / freezing point

122 - 126 °C

#### Boiling point or initial boiling point and boiling range

No data available

#### Flammability

No data available

#### Lower and upper explosion limit

No data available

#### Flash point

No data available

#### Auto-ignition temperature

No data available

#### Decomposition temperature

No data available

#### pH

No data available

#### Kinematic viscosity

No data available

#### Solubility

No data available

#### Partition coefficient n-octanol/water

No data available

#### Vapour pressure

No data available

#### Density and/or relative density

No data available

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## Relative vapour density

No data available

## Particle characteristics

No data available

## 9.2. Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

There are no known reactivity hazards associated with this product.

### 10.2. Chemical stability

Stable under the prescribed storage conditions.

### 10.3. Possibility of hazardous reactions

No data available

### 10.4. Conditions to avoid

No data available

### 10.5. Incompatible materials

Strong oxidising agents.

### 10.6. Hazardous decomposition products

See section 5.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Duration of exposure
Ritonavir 155213-67-5 / 605-001-5	ATE = Acute Toxicity Estimate.	1.5 mg/l	Inhalation.	4 hours
Ritonavir 155213-67-5 / 605-001-5	ATE = Acute Toxicity Estimate.	1100 mg/kg	Dermal	-

#### Aspiration hazard

Based on available data, the classification criteria are not met.



According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## 11.2. Information on other hazards

No data available

## SECTION 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. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

### 12.7. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport information

### 14.1. UN number

Not applicable

### 14.2. UN proper shipping name

Not applicable

### 14.3. Transport hazard class(es)

Not applicable

### 14.4. Packing group

Not applicable

### 14.5. Environmental hazards

Not applicable

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Ritonavir

Version number: 1  
Issued: 2024-03-22



## 14.6. Special precautions for user

Not applicable

## 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

#### National regulations

No data available

### 15.2. Chemical safety assessment

No data available

## SECTION 16: Other information

#### Phrase meaning

Carc. 2 - Carcinogenicity, hazard category 2

Skin Irrit. 2 - Skin irritation, hazard category 2

Repr. 2 - Reproductive toxicity, hazard category 2

STOT RE 2 - Specific Target Organ Toxicity — Repeated exposure, hazard category 2

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4

Acute Tox. 4 - dermal - Acute toxicity, dermal, hazard category 4

Acute Tox. 4 - inhalation - Acute toxicity, inhalation, hazard category 4

H302 Harmful if swallowed.

H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H351 Suspected of causing cancer.

H361 Suspected of damaging fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.