



Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking**· 1.1 Product identifier****· Product name: Ritonavir****· Part number: DRE-C16815300****· CAS Number:**

155213-67-5

· EC number:

605-001-5

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

No further relevant information available.

· Application of the substance / the mixture Reference material for laboratory use only**· 1.3 Details of the supplier of the safety data sheet****· Manufacturer/Supplier:**

LGC Limited

Queens Road

Teddington

Middlesex TW11 0LY

UNITED KINGDOM

Tel : +44 (0) 20 8943 7000

Fax : +44 (0) 20 8943 2767

eMail : gb@lgcstandards.comWeb : www.lgcstandards.com**· Further information obtainable from:**

Product safety department

eMail : sds-request@lgcgroup.com**· 1.4 Emergency telephone number:**

For Hazardous Materials or Dangerous Goods Incident

Spill, Leak, Fire Exposure, or Accident

Call CHEMTREC:

USA & Canada 1-800-424-9300

Rest of the world +1 703-741-5970

SECTION 2: Hazards identification**· 2.1 Classification of the substance or mixture****· Classification according to Regulation (EC) No 1272/2008**

GHS08 health hazard

Carc. 2 H351 Suspected of causing cancer.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Eye Irrit. 2 H319 Causes serious eye irritation.

(Contd. on page 2)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 1)

· 2.2 Label elements**· Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

· Hazard pictograms

GHS07 GHS08

· Signal word Warning**· Hazard statements**

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer.

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

· Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 2.3 Other hazards**· Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· 3.1 Chemical characterisation: Substances**· CAS No. Description**

155213-67-5 Ritonavir

· Identification number(s) None**· EC number:** 605-001-5**· RTECS:** XA5310000

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures**· General information:**

Symptoms of poisoning may occur even after several hours; therefore medical observation for at least 48 hours after the accident is recommended.

(Contd. on page 3)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 2)

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**
Rinse mouth. Do not induce vomiting.
Seek medical treatment.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable for surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Dispose of contaminated material as waste according to item 13.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Please refer to the manufacturer's certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep container tightly sealed.

(Contd. on page 4)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 3)

· 7.3 *Specific end use(s)* No further relevant information available.

SECTION 8: Exposure controls/personal protection

· *Additional information about design of technical facilities:* No further data; see item 7.

· **8.1 Control parameters**

· *Ingredients with limit values that require monitoring at the workplace:* Not required.

· *Additional information:* Lists used were valid at the time of SDS preparation.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

· **Material of gloves** Butyl rubber, BR

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

GB

(Contd. on page 5)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 4)

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Solid
· Colour:	Off white
· Odour:	Odourless
· Odour threshold:	Not determined.

· pH-value: Not applicable.

· Change in condition

· Melting point/freezing point:	122-126 °C
· Initial boiling point and boiling range:	Not determined.

· Flash point: Not applicable.

· Flammability (solid, gas): Not determined.

· Ignition temperature: Not determined

· Decomposition temperature: Not determined.

· Auto-ignition temperature: Not determined.

· Explosive properties: Not determined.

· Explosion limits:

· Lower:	Not determined.
· Upper:	Not determined.

· Vapour pressure: Not applicable.

· Density at 20 °C:	1.239 g/cm ³
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.

· Solubility in / Miscibility with	Methanol, Ethanol, Isopropanol
· water:	Not determined.

· Partition coefficient: n-octanol/water: Not determined.

· Viscosity:

· Dynamic:	Not applicable.
· Kinematic:	Not applicable.

· 9.2 Other information No further relevant information available.

GB

(Contd. on page 6)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 5)

SECTION 10: Stability and reactivity

· 10.1 Reactivity*Stable under normal conditions.**No further relevant information available.***· 10.2 Chemical stability** *Stable under normal conditions.***· Thermal decomposition / conditions to be avoided:***Formation of toxic gases is possible during heating or in case of fire.***· 10.3 Possibility of hazardous reactions** *No dangerous reactions known.***· 10.4 Conditions to avoid** *Heat.***· 10.5 Incompatible materials:** *Strong oxidizing agents.***· 10.6 Hazardous decomposition products:***Formation of toxic gases is possible during heating or in case of fire.*

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects**· Acute toxicity***Harmful if swallowed.***· Primary irritant effect:****· Skin corrosion/irritation** *Based on available data, the classification criteria are not met.***· Serious eye damage/irritation***Causes serious eye irritation.***· Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.***· CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)***Carc. 2***· Germ cell mutagenicity** *Based on available data, the classification criteria are not met.***· Carcinogenicity***Suspected of causing cancer.***· Reproductive toxicity** *Based on available data, the classification criteria are not met.***· STOT-single exposure** *Based on available data, the classification criteria are not met.***· STOT-repeated exposure***May cause damage to organs through prolonged or repeated exposure.***· Aspiration hazard** *Based on available data, the classification criteria are not met.*

SECTION 12: Ecological information

· 12.1 Toxicity**· Aquatic toxicity:** *No further relevant information available.***· 12.2 Persistence and degradability** *No further relevant information available.***· 12.3 Bioaccumulative potential** *No further relevant information available.***· 12.4 Mobility in soil** *No further relevant information available.***· Additional ecological information:****· General notes:***Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water**Do not allow product to reach ground water, water course or sewage system.*

(Contd. on page 7)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 6)

Danger to drinking water if even small quantities leak into the ground.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

Waste disposal key numbers from EWC have to be assigned depending on origin and processing.

· **Uncleaned packaging:**

· **Recommendation:** Dispose of in accordance with national regulations.

SECTION 14: Transport information

· **14.1 UN-Number**

· **ADR, IMDG, IATA**

Not applicable

· **ADR, IMDG, IATA**

Not applicable

· **14.3 Transport hazard class(es)**

· **ADR, ADN, IMDG, IATA**

· **Class**

Not applicable

· **14.4 Packing group**

· **ADR, IMDG, IATA**

Not applicable

· **14.5 Environmental hazards:**

Not applicable.

· **14.6 Special precautions for user**

Not applicable.

· **14.7 Transport in bulk according to Annex II of
Marpol and the IBC Code**

Not applicable.

· **UN "Model Regulation":**

Not applicable

SECTION 15: Regulatory information

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

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** Substance is not listed.

(Contd. on page 8)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.02.2020

Version number 1

Revision: 20.02.2020

Product name: Ritonavir

(Contd. from page 7)

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

The information in this safety data sheet (SDS) has been prepared with due care and is true and accurate to the best of our knowledge. The user must determine the suitability of the information for its particular purpose, ensure compliance with existing laws and regulations, and be aware that other or additional safety or performance considerations may arise when using, handling and/ or storing the material. The information in this SDS does not purport to be all inclusive or a guarantee as to the properties of the material supplied, and should be used only as a guide. LGC makes no warranties or representations as to the accuracy and completeness of the information contained herein, shall not be held responsible for the suitability of this information for the user's intended purposes or the consequences of such use, and shall not be liable for any damage or loss, howsoever arising, direct or otherwise.

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity – Category 4

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Carc. 2: Carcinogenicity – Category 2

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

· **Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· **Data compared to the previous version altered.** All sections have been updated.