

Safety Data Sheet



Takeda Pharmaceutical Company Limited

Product Name: TAK-390

Date of revision: 27th February, 2013

Section 1: Chemical product and company identification

1.1. Product identifier

Product Name: Dexlansoprazol (TAK-390)
CAS Number: 138530-94-6
Chemical name: (+)-2-[(R)-{[3-methyl-4-(2,2,2-trifluoroethoxy)pyridin-2-yl]methyl} sulfinyl]-1*H*-benzimidazole

1.2 Manufacture/supplier

Name: Takeda Pharmaceutical Company Limited
Department in Charge: Pharmaceutical Production Division
 Chemical Technology Department
Address: 4720, Takeda Mitsui Hikari Yamaguchi 743-8502, Japan
Telephone number: +81 833-71-5570
Fax number: +81 833-71-5572

1.3 Emergency telephone number: +81 833-71-5570 (8AM to 5PM from Monday to Friday in JPN time)

1.4 Recommended use and restriction on use: Active ingredient for pharmaceuticals

Section 2: Hazards identification

2.1 Important hazards

GHS classification:

Physical Hazards

Not classified

Health Hazards

Skin sensitization	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

Environmental Hazards

Not classified



Product Name: TAK-390

Date of revision: 27th February, 2013

Label elements:



Signal word

Warning

Hazard Statements

H317: May cause an allergic skin reaction
 H373: May cause damage to organs (stomach) through prolonged or repeated exposure

Precautionary Statements

[Prevention]

P260: Do not breathe dust/fume/gas.
 P261: Avoid breathing dust/fume/gas.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

[Emergency response]

P314: Get medical advice/attention if you feel unwell.
 P302+P352: IF ON SKIN: Wash with plenty of water.
 P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
 P362+P364: Take off contaminated clothing and wash it before reuse.

[Disposal]

P501: Dispose of contents/ container in accordance with related laws and local/ regional regulations.

Section 3: Composition/ information on ingredients

3.1. Substance/Mixture

Substance

Product Name:

Dexlansoprazole (TAK-390)

CAS Number:

138530-94-6

Chemical name:

(+)-2-[(R)-{[3-methyl-4-(2,2,2-trifluoroethoxy)pyridin-2-yl]methyl} sulfinyl]-1H-benzimidazole

Molecular formula:

C₁₆H₁₄F₃N₃O₂S

Molecular weight:

369.36

Purity:

100wt-%



Product Name: TAK-390

Date of revision: 27th February, 2013

Section 4: First-aid measures

4.1 First aid procedures

IF IN EYES: Immediately flush with plenty of water for few minutes, Get medical attention if irritation or rash occur.

IF ON SKIN: Immediately rinse with soap and plenty of water. Get medical attention if irritation or rash occur.

IF INHALED: If breathing is difficult, use artificial respirator as appropriate. Get medical attention if you feel unwell.

IF INGESTED: Rinse mouth. Get medical attention if any symptoms occur.

If health problem, e.g. skin irritation occurs, do not use the product.

4.2 Anticipated acute effects, anticipated delayed effects and most important symptoms/effects

May cause an allergic skin reaction.

May cause damage to organs (stomach) through prolonged or repeated exposure.

4.3 Protection of first-aiders

Wear appropriate eyes and skin protective equipment.

4.4 Notes to an attending physician

No information

Section 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water spray, dry chemical or CO₂.

Unsuitable extinguishing media:

Avoid direct discharge of cylinder shape water because it may spread fire to surroundings.

5.2 Specific hazards arising from the chemical

As a general warning, the product and many other organic products in powder form may be capable of causing a dust explosion under certain conditions.

5.3 Protective equipment and precautions for firefighters

Take action from windward.

Non-responsible personnel should escape from the fire site.

Move container to a safe area if it is not dangerous.

Fire fighters should wear appropriate personal protective equipment.



Product Name: TAK-390

Date of revision: 27th February, 2013

Section 6: Accidental release measures

6.1 Personal precautions

Keep out except responsible personnel.

Wear suitable protective equipment (see Section 8) e.g., safety gloves, protective mask and/or protective glasses to prevent exposure.

6.2 Environmental precautions

Do not release the product into drain, sewer and rivers.

Avoid releasing large amount of the product into any environmental compartments.

6.3 Methods and materials for containment and cleaning up

Stop spill if it is not dangerous.

Wet this product with water in order to reduce dust in air and to prevent dispersion.

Collect immediately spilled product and wash out remaining small amount of the product with plenty of water.

6.4 Secondary disaster prevention measures

Refer to “Section 8: Exposure controls/ personal protection” and “Section 13: Disposal consideration” as appropriate.

Section 7: Handling and storage

7.1 Handling

Technical measures	Take precautionary measures described in Section 8 and wear personal protective equipment as required. This product should be handled only by personnel who has been trained and well understood regarding safe use of this product.
Precautions such as local/total ventilation	Install appropriate equipment and wear suitable protective apparatus described in “Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION”.
Precautions for safe handling	Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid the generation of dust.
Prevention of contact	No information



Product Name: TAK-390

Date of revision: 27th February, 2013

7.2 Storage

Technical measures	Take precautionary measures against static discharge.
Incompatible materials and mixtures	Oxidising agents, reducing agents, strong acids or bases
Conditions for safe storage	This product should be stored in the original container and be sealed to prevent from contamination and getting wet. The product should be stored in a dark and cool place. Keep away from strong bases and acids.
Packing material	Use a sealed container without damage or leakage.

Section 8: Exposure controls and personal protection

8.1 Permissible concentration

Occupational Exposure Limits:	Not specified
-------------------------------	---------------

8.2 Engineering controls

If generation of dust is expected, it is recommended to use local exhaust ventilation so as to control airborne concentration.

8.3 Personal protective equipment

Respiratory protection:	In case of insufficient ventilation, wear suitable respiratory protective equipment.
Hand protection:	Wear chemical resistant safety gloves.
Eye/ face protection:	If generation of dust or splash of mist is expected, use goggles with side shields to protect eyes.
Skin and body protection:	Wear rubber or plastic safety boots and chemical resistant apron/work clothing with full body protection, if necessary.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance (physical state, form and colour):	White to practically white crystalline powder
Odour:	Odourless
pH:	No information
Melting point:	140°C (decomposition)
Boiling point, initial boiling point and boiling range:	No information
Flash point:	No information
Upper/lower flammability or explosive limits:	No information
Vapour pressure:	No information
Vapour density:	No information
Density/relative density:	No information



Product Name: TAK-390

Date of revision: 27th February, 2013

Solubility (mg/mL at 25°C):	DMF: 700, methanol: 570, dichloromethane: 310, ethanol: 220, ethyl acetate: 120, acetone: 91, ether: 4.6, water: 0.16, hexane: 0.003
Water solubility (mg/ml in Britton-Robinson's buffer):	0.21 (pH 7.0), 0.54 (pH 9.0), 2.8 (pH 11), 58 (pH 13)
Octanol/water partition coefficient:	240 (pH 7.0), 120 (pH 9.0), 10 (pH 11), 0.8 (pH 13)
Auto-ignition temperature:	No information
Decomposition temperature:	No information
Odour threshold:	No information
Evaporation rate:	No information
Flammability:	No information
Viscosity:	No information
Minimum explosive concentration:	80 g/m ³ (200 mesh pass)
Minimum ignition energy:	2.4 mJ (200 mesh pass)
Specific optical rotation [α] (D20):	+203° (0.05 g in 5 mL of DMF, 100mm)
Hygroscopicity:	Not hygroscopic
UV absorption spectrum:	λ max (MeOH): 284 nm [ϵ = 15300, E (1%, 1 cm) = 413]
Dissociation constant (pKa):	8.87: as an acid 4.5: as pyridine part 1.3: as benzimidazole part

Section 10: Stability and reactivity

10.1 Chemical stability:	Non-reactive Stable at least 36 months under dry, dark and ambient conditions.
10.2 Hazardous reactions:	Not expected
10.3 Conditions to avoid:	High temperature, humidity and light
10.4 Incompatible materials:	Oxidising agents, reducing agents, strong acids or bases
10.5 Hazardous decomposition products:	Similar to other organic substances, carbon, nitrogen and sulfur oxides will produce due to combustion.

Section 11: Toxicological information

Information on product

Acute toxicity:	(Oral) LD ₅₀ > 5,000 mg/kg (mice, rats, dogs) [as AG-1749 ¹ study]
Skin sensitization:	Positive in guinea pigs.
Reproductive cell mutagenicity:	(<i>in vitro</i>) Positive in Ames assay, positive (cytotoxicity related) in chromosome aberration assay with Chinese hamster lung cells. (<i>in vivo</i>) Negative in Mouse micronucleus test.
Carcinogenicity:	Increased incidence of hepatocellular adenoma and carcinoma in liver, and rate testes tumours in mice [AG-1749 study].



Product Name: TAK-390

Date of revision: 27th February, 2013

	Carcinoid tumours in stomach and Leydig cell tumours in testes in rats [AG-1749 study].
Reproductive toxicity:	No teratogenicity was observed in rabbit study. NOAEL = 30 mg/kg/day for maternal toxicity and 10 mg/kg/day for fetuses.
Specific target organ toxicity (repeated exposure):	In 13-week oral studies, and increase in lung weight and decreases in pituitary and thymus weights (rats) and parietal cell necrosis in stomach (dogs) were observed, and LOEL = 50 and 5 mg/kg/day (NOAEL = 15 and 5 mg/kg/day), respectively.
Other information (e.g. Human clinical findings):	May cause skin sensitisation and/or skin rash in humans.

1] AG-1749 is an optical isomer mixture of this product.

Section 12: Ecological information

12.1 Ecotoxicity:

Information on product: No information

12.2 Persistence and degradability:

Information on product: No information

12.3 Bioaccumulative potential:

Information on product: No information

12.4 Mobility in soil:

Information on product: No information

Section 13: Disposal Considerations

13.1 Hazardous waste characteristics

US-EPA RCRA Hazardous Waste: Not applicable

Waste can be incinerated

Ensure to dispose of the waste in compliance with applicable regulations and conformity to local disposal considerations.

Entrust to a certificated waste trader or consult to a local office if they deal with waste.

13.2 Contaminated container and packaging

Used container may also be incinerated or recycled or dispose of in accordance with applicable regulations.

Remaining product should be removed completely upon disposal.



Product Name: TAK-390

Date of revision: 27th February, 2013

Section 14: Transport information

14.1 International regulations

Land (according to ADR/RID)

UN number	Not applicable
UN proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Subsidiary risk	Not applicable
UN Packing group	Not applicable

Sea (according to IMO)

UN number	Not applicable
UN proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Subsidiary risk	Not applicable
UN Packing group	Not applicable
Environmental hazards	Not applicable
IBC code	Not applicable

Air (according to ICAO/IATA)

UN number	Not applicable
UN proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Subsidiary risk	Not applicable
UN Packing group	Not applicable

Avoid sunlight and load so as to prevent from damaging to, corrosion, leakage or collapse of containers.

Section 15: Regulatory information

US Federal regulation

OSHA:	Non-hazardous chemical
TSCA inventory:	This substance is on the inventory or exempt from listing.

EU regulation

The product and its ingredients are not regulated by specific provisions related to protection of human health or the environment at EU level, e.g. not considered as SVHCs or POPs.

(EC) 1272/2008 (Annex VI, Table-3.1, Table 3.2): Not Listed

**Product Name: TAK-390**Date of revision: 27th February, 2013

Section 16: Other information

Update history:

Date of issue: 2nd October, 2012

Date of revision: 27th February, 2013

Revision was made in order to update stability data in section 10.1 (24 months to 36 months).

Literature references: Data provided by Takeda Pharmaceutical Company Limited.**[Disclaimer]**

The information contained on the safety data sheet has been compiled from data considered accurate. These data are believed to be reliable, however, it must be pointed out that values for certain properties are known to vary depending on data sources.

The manufacturer expressly disclaims any warranty expressed or implied as well as any liability for any injury or loss arising from the use of this information or the materials described. These data are not to be considered as absolutely complete since additional data may be desirable when particular conditions or circumstances exist. It is the responsibility of the user to determine the best precautions necessary for the safe handling and use of this material for your application. These data relate only to the specific material designation and not to be used in combination with any other material. Many local regulations pertain directly or indirectly to the product's end use and disposal of containers and unused material. It is the user's responsibility to ensure all applicable regulations.