according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

SECTION 1. IDENTIFICATION

Product name : Sitagliptin / Simvastatin Formulation

Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Merck & Co., Inc Address : 126 E. Lincoln Avenue

Rahway, New Jersey U.S.A. 07065

Telephone : 908-740-4000 Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use

Recommended use : Pharmaceutical Restrictions on use : Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Eye irritation : Category 2A

Skin sensitization : Category 1

Carcinogenicity (Inhalation) : Category 2

Specific target organ toxicity

- repeated exposure

: Category 1 (Liver, muscle, optic nerve, Eye)

GHS label elements

Hazard pictograms





Signal Word : Danger

Hazard Statements : H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer if inhaled.

H372 Causes damage to organs (Liver, muscle, optic nerve,

Eye) through prolonged or repeated exposure.

Precautionary Statements : Prevention:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read

and understood.

P260 Do not breathe dust.

P264 Wash skin thoroughly after handling.

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

P270 Do not eat, drink or smoke when using this product. P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.

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

P308 + P313 IF exposed or concerned: Get medical attention. P333 + P313 If skin irritation or rash occurs: Get medical attention

P337 + P313 If eye irritation persists: Get medical attention. P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards

May form explosive dust-air mixture during processing, handling or other means.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common	CAS-No.	Concentration (% w/w)
	Name/Synonym		
Sitagliptin Phosphate	No data availa- ble	654671-77-9	>= 10 - < 30 *
Cellulose	No data availa- ble	9004-34-6	>= 5 - < 10 *
Simvastatin	No data availa- ble	79902-63-9	>= 1 - < 5 *
Starch	Sago starch	9005-25-8	>= 1 - < 5 *
Ascorbic acid	No data availa- ble	50-81-7	>= 1 - < 5 *
Titanium dioxide	Titanic anhy- dride	13463-67-7	>= 0.1 - < 1 *

^{*} Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical

advice immediately.

When symptoms persist or in all cases of doubt seek medical

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version **Revision Date:** SDS Number: Date of last issue: 07/06/2024 08/11/2025 24487-00026 Date of first issue: 10/21/2014 8.1

advice.

If inhaled If inhaled, remove to fresh air.

Get medical attention.

In case of skin contact In case of contact, immediately flush skin with plenty of water.

Remove contaminated clothing and shoes.

Get medical attention. Wash clothing before reuse.

Thoroughly clean shoes before reuse.

In case of eye contact In case of contact, immediately flush eyes with plenty of water

for at least 15 minutes.

If easy to do, remove contact lens, if worn.

Get medical attention.

If swallowed If swallowed, DO NOT induce vomiting.

> Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and

delayed

May cause an allergic skin reaction.

Causes serious eye irritation.

Suspected of causing cancer if inhaled.

Causes damage to organs through prolonged or repeated

exposure.

Protection of first-aiders First Aid responders should pay attention to self-protection,

> and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Water spray

> Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire

fighting

Avoid generating dust; fine dust dispersed in air in sufficient

concentrations, and in the presence of an ignition source is a

potential dust explosion hazard.

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod: :

ucts

Carbon oxides Metal oxides

Oxides of phosphorus

Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment.

Use water spray to cool unopened containers.

Remove undamaged containers from fire area if it is safe to do

SO.

Evacuate area.

Special protective equipment:

for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 08/11/2025 24487-00026 Date of first issue: 10/21/2014 8.1

SECTION 6. ACCIDENTAL RELEASE MEASURES

gency procedures

tive equipment and emer-

Personal precautions, protec- : Use personal protective equipment.

Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions Avoid release to the environment.

> Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.

Local authorities should be advised if significant spillages

cannot be contained.

Methods and materials for containment and cleaning up Sweep up or vacuum up spillage and collect in suitable

container for disposal.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces

with compressed air).

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to

determine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures Static electricity may accumulate and ignite suspended dust

causing an explosion.

Provide adequate precautions, such as electrical grounding

and bonding, or inert atmospheres.

Local/Total ventilation Advice on safe handling Use only with adequate ventilation. Do not get on skin or clothing.

Do not breathe dust. Do not swallow. Do not get in eyes.

Wash skin thoroughly after handling.

Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure

assessment

Minimize dust generation and accumulation. Keep container closed when not in use. Keep away from heat and sources of ignition.

Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product.

Take care to prevent spills, waste and minimize release to the

environment.

Keep in properly labeled containers. Conditions for safe storage

Store in accordance with the particular national regulations.

Do not store with the following product types: Materials to avoid

Strong oxidizing agents

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 07/06/2024

 8.1
 08/11/2025
 24487-00026
 Date of first issue: 10/21/2014

Self-reactive substances and mixtures

Organic peroxides

Explosives Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis	
Sitagliptin Phosphate	654671-77-9	TWA	0.6 mg/m3 (OEB 2)	Internal	
Cellulose	9004-34-6	TWA	10 mg/m ³	CA AB OEL	
		TWA (Total dust)	10 mg/m³	CA BC OEL	
		TWA (respirable dust fraction)	3 mg/m³	CA BC OEL	
		TWAEV (to- tal dust)	10 mg/m³	CA QC OEL	
		TWA	10 mg/m ³	ACGIH	
Simvastatin	79902-63-9	TWA	25 μg/m3 (OEB 3)	Internal	
	Further information: DSEN				
		Wipe limit	250 µg/100 cm ²	Internal	
Starch	9005-25-8	TWA	10 mg/m ³	CA AB OEL	
		TWA (Total dust)	10 mg/m³	CA BC OEL	
		TWA (respirable dust fraction)	3 mg/m³	CA BC OEL	
		TWAEV (to- tal dust)	10 mg/m³	CA QC OEL	
		TWA	10 mg/m ³	ACGIH	
Ascorbic acid	50-81-7	TWA	5000 μg/m3 (OEB 1)	Internal	
Titanium dioxide	13463-67-7	TWA	10 mg/m ³	CA AB OEL	
		TWA (Total dust)	10 mg/m³	CA BC OEL	
		TWA (respirable dust fraction)	3 mg/m³	CA BC OEL	
		TWAEV (to- tal dust)	10 mg/m³	CA QC OEL	

Engineering measures

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

the compound to uncontrolled areas (e.g., open-face

containment devices). Minimize open handling.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or

exposure assessment demonstrates exposures outside the

recommended guidelines, use respiratory protection.

Filter type

Particulates type

Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving.

Eye protection : Wear safety glasses with side shields or goggles.

If the work environment or activity involves dusty conditions,

mists or aerosols, wear the appropriate goggles.

Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or

aerosols.

Skin and body protection : Work uniform or laboratory coat.

Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets,

disposable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially

contaminated clothing.

Hygiene measures : If exposure to chemical is likely during typical use, provide

eye flushing systems and safety showers close to the

working place.

When using do not eat, drink or smoke.

Contaminated work clothing should not be allowed out of the

workplace.

Wash contaminated clothing before re-use.

The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the

use of administrative controls.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Color : pink

Odor : No data available

Odor Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling : No data available

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

range

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : May form explosive dust-air mixture during processing,

handling or other means.

Flammability (liquids) : No data available

Upper explosion limit / Upper

flammability limit

No data available

Lower explosion limit / Lower

flammability limit

No data available

Vapor pressure : Not applicable

Relative vapor density : Not applicable

Relative density : No data available

Density : No data available

Solubility(ies)

Water solubility : No data available

Partition coefficient: n-

octanol/water

Not applicable

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic : Not applicable

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle characteristics

Particle size : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard. Chemical stability : Stable under normal conditions.

Possibility of hazardous reac- : May form explosive dust-air mixture during processing,

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

tions handling or other means.

Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.

Avoid dust formation.

Incompatible materials : Oxidizing agents

Hazardous decomposition :

products

No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation Skin contact Ingestion Eye contact

Acute toxicity

Not classified based on available information.

Components:

Sitagliptin Phosphate:

Acute oral toxicity : LD50 (Rat): > 3,000 mg/kg

LD50 (Mouse): 3,000 mg/kg

Cellulose:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.8 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Simvastatin:

Acute oral toxicity : LD50 (Rat): 5,000 mg/kg

LD50 (Mouse): 3,800 mg/kg

Starch:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Ascorbic acid:

Acute oral toxicity : LD50 (Rat): 11,900 mg/kg

Titanium dioxide:

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 6.82 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Assessment: The substance or mixture has no acute inhala-

tion toxicity

Skin corrosion/irritation

Not classified based on available information.

Components:

Sitagliptin Phosphate:

Species : Rabbit
Method : Draize Test
Result : No skin irritation

Simvastatin:

Species : Rabbit

Remarks : Moderate skin irritation

Ascorbic acid:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Titanium dioxide:

Species : Rabbit

Result : No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

Sitagliptin Phosphate:

Species : Rabbit

Result : Irritating to eyes. Method : Draize Test

Simvastatin:

Species : Rabbit Remarks : slight irritation

Starch:

Species : Rabbit

Result : No eye irritation

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Ascorbic acid:

Species : Rabbit

Result : No eye irritation

Method : OECD Test Guideline 405

Titanium dioxide:

Species : Rabbit

Result : No eye irritation

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Components:

Sitagliptin Phosphate:

Test Type : Local lymph node assay (LLNA)

Species : Mouse

Method : OECD Test Guideline 429
Result : Not a skin sensitizer.

Simvastatin:

Assessment : Probability or evidence of skin sensitization in humans

Result : positive

Starch:

Test Type : Maximization Test
Routes of exposure : Skin contact
Species : Guinea pig
Result : negative

Ascorbic acid:

Test Type : Maurer optimisation test

Routes of exposure : Skin contact Species : Guinea pig Result : negative

Titanium dioxide:

Test Type : Local lymph node assay (LLNA)

Routes of exposure : Skin contact Species : Mouse : negative

Germ cell mutagenicity

Not classified based on available information.

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Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Components:

Sitagliptin Phosphate:

Genotoxicity in vitro : Test Type: Ames test

Result: negative

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells

Result: negative

Test Type: DNA damage and repair, unscheduled DNA syn-

thesis in mammalian cells (in vitro) Test system: rat hepatocytes

Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse Application Route: Oral Result: negative

Cellulose:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Ingestion

Result: negative

Simvastatin:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Test Type: Alkaline elution assay

Result: negative

Test Type: Chromosomal aberration

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse Application Route: Oral Result: negative

Germ cell mutagenicity - : Weight of evidence does not support classification as a germ

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Assessment cell mutagen.

Starch:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Ascorbic acid:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Ingestion

Result: negative

Titanium dioxide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test

Species: Mouse Result: negative

Carcinogenicity

Suspected of causing cancer if inhaled.

Components:

Sitagliptin Phosphate:

Species : Mouse
Application Route : Oral
Exposure time : 2 Years
Result : negative

Species : Rat

Application Route : oral (drinking water)

Exposure time : 2 Years
Result : positive
Target Organs : Liver

Remarks : Significant toxicity observed in testing

Carcinogenicity - Assess-

ment

Weight of evidence does not support classification as a car-

cinogen

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Cellulose:

Species : Rat
Application Route : Ingestion
Exposure time : 72 weeks
Result : negative

Simvastatin:

Species : Mouse
Application Route : Oral
Exposure time : < 92 weeks
Target Organs : Harderian gland

Tumor Type : Liver, Lungs

Remarks : The significance of these findings for humans is not certain.

Species : Rat
Application Route : Oral
Exposure time : 2 Years
Tumor Type : Liver, Thyroid

Remarks : The significance of these findings for humans is not certain.

Ascorbic acid:

Species : Mouse
Application Route : Ingestion
Exposure time : 2 Years
Result : negative

Titanium dioxide:

Species : Rat

Application Route : inhalation (dust/mist/fume)

Exposure time : 2 Years

Method : OECD Test Guideline 453

Result : positive

Remarks : The mechanism or mode of action may not be relevant in hu-

mans.

Carcinogenicity - Assess-

ment

: Limited evidence of carcinogenicity in inhalation studies with

animals.

Reproductive toxicity

Not classified based on available information.

Components:

Sitagliptin Phosphate:

Effects on fertility : Test Type: Fertility/early embryonic development

Species: Rat

Application Route: Oral

Fertility: NOAEL Parent: 1,000 mg/kg body weight Result: Animal testing did not show any effects on fertility.

Effects on fetal development : Test Type: Embryo-fetal development

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Species: Rat

Application Route: Oral

Teratogenicity: LOAEL: 250 mg/kg body weight Result: Embryotoxic effects and adverse effects on the offspring were detected., No teratogenic effects.

Test Type: Embryo-fetal development

Species: Rabbit

Teratogenicity: NOAEL: 125 mg/kg body weight

Result: No teratogenic effects.

Cellulose:

Effects on fertility : Test Type: One-generation reproduction toxicity study

Species: Rat

Application Route: Ingestion

Result: negative

Effects on fetal development : Test Type: Fertility/early embryonic development

Species: Rat

Application Route: Ingestion

Result: negative

Simvastatin:

Effects on fertility : Test Type: Fertility

Species: Rat, male Application Route: Oral

Fertility: LOAEL: 25 mg/kg body weight

Effects on fetal development : Test Type: Embryo-fetal development

Species: Rat

Application Route: Oral

Embryo-fetal toxicity.: NOAEL: 25 mg/kg body weight Result: No teratogenic effects., No adverse effects.

Test Type: Embryo-fetal development

Species: Rabbit Application Route: Oral

Embryo-fetal toxicity.: NOAEL: 10 mg/kg body weight Result: No teratogenic effects., No adverse effects.

Test Type: Embryo-fetal development

Species: Rat

Application Route: Oral

Embryo-fetal toxicity.: LOAEL: 60 mg/kg body weight

Result: Teratogenic potential.

Remarks: Based on data from similar materials

Ascorbic acid:

Effects on fetal development : Test Type: Embryo-fetal development

Species: Rat

Application Route: Ingestion

Result: negative

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Causes damage to organs (Liver, muscle, optic nerve, Eye) through prolonged or repeated exposure.

Components:

Simvastatin:

Target Organs : Liver, muscle, optic nerve, Eye

Assessment : Causes damage to organs through prolonged or repeated

exposure.

Repeated dose toxicity

Components:

Sitagliptin Phosphate:

Species : Mouse
NOAEL : 500 mg/kg
LOAEL : 1,000 mg/kg

Application Route : Oral
Exposure time : > 2 y
Target Organs : Kidney

Species : Rat

 NOAEL
 : 500 mg/kg

 LOAEL
 : 1,000 mg/kg

Application Route : Oral Exposure time : 14 Weeks

Target Organs : Liver, Kidney, Heart, Teeth

Species : Dog
NOAEL : 10 mg/kg
LOAEL : 50 mg/kg
Application Route : Oral
Exposure time : 53 Weeks

Target Organs : Central nervous system

Symptoms : Loss of balance

Remarks : The mechanism or mode of action may not be relevant in

humans.

Species : Dog
NOAEL : 2 mg/kg
LOAEL : 10 mg/kg
Application Route : Oral
Exposure time : 27 Weeks

Target Organs : Skeletal muscle, Central nervous system

Symptoms : Loss of balance

Remarks : The mechanism or mode of action may not be relevant in

humans.

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 07/06/2024

 8.1
 08/11/2025
 24487-00026
 Date of first issue: 10/21/2014

Species : Monkey
NOAEL : 100 mg/kg
Application Route : Oral
Exposure time : 14 Weeks

Remarks : No significant adverse effects were reported

Cellulose:

Species : Rat

NOAEL : >= 9,000 mg/kg Application Route : Ingestion

Exposure time : 90 Days

Simvastatin:

Species : Rat

NOAEL : 5 mg/kg

LOAEL : 30 mg/kg

Application Route : Oral

Exposure time : 14 - 104 Weeks

Target Organs : Liver, Testis, Musculo-skeletal system, Eye

Species : Dog LOAEL : 10 mg/kg Application Route : Oral

Exposure time : 14 - 104 Weeks Target Organs : Liver, Testis, Eye

Species: RabbitNOAEL: 30 mg/kgLOAEL: 50 mg/kgApplication Route: Oral

Target Organs : Liver, Kidney

Starch:

Species : Rat

NOAEL : >= 2,000 mg/kg
Application Route : Skin contact
Exposure time : 28 Days

Method : OECD Test Guideline 410

Ascorbic acid:

Species : Rat, male

NOAEL : >= 8,100 mg/kg

Application Route : Ingestion

Exposure time : 13 Weeks

Titanium dioxide:

Species : Rat

NOAEL : 24,000 mg/kg Application Route : Ingestion Exposure time : 28 Days

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Species : Rat NOAEL : 10 mg/m³

Application Route : inhalation (dust/mist/fume)

Exposure time : 2 y

Aspiration toxicity

Not classified based on available information.

Experience with human exposure

Components:

Sitagliptin Phosphate:

Inhalation : Symptoms: upper respiratory tract infection, pharyngitis,

Headache

Ingestion : Symptoms: upper respiratory tract infection, nasopharyngitis,

Headache, Nausea, Abdominal pain, Diarrhea

Simvastatin:

Skin contact : Remarks: May produce an allergic reaction.

Ingestion : Target Organs: Liver

Symptoms: upper respiratory tract infection, Headache, Ab-

dominal pain, constipation, Nausea Target Organs: Musculo-skeletal system

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Sitagliptin Phosphate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 60 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): > 39

mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 2.2

mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

Toxicity to fish (Chronic tox-

icity)

NOEC (Pimephales promelas (fathead minnow)): 9.2 mg/l

Exposure time: 33 d

Method: OECD Test Guideline 210

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version **Revision Date:** SDS Number: Date of last issue: 07/06/2024 08/11/2025 24487-00026 Date of first issue: 10/21/2014 8.1

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 9.8 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

Toxicity to microorganisms EC50: > 150 mg/l

Exposure time: 3 h

Test Type: Respiration inhibition Method: OECD Test Guideline 209

NOEC: 150 mg/l Exposure time: 3 h

Test Type: Respiration inhibition

Cellulose:

Toxicity to fish LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l

Exposure time: 48 h

Remarks: Based on data from similar materials

Simvastatin:

LC50 (Pimephales promelas (fathead minnow)): 2.91 mg/l Toxicity to fish

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 3.5 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): > 25

mg/l

Exposure time: 96 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 25

mg/l

Exposure time: 96 h

Toxicity to microorganisms

EC50: > 30 mg/lExposure time: 3 h

Test Type: Respiration inhibition

Method: OECD Test Guideline 209

NOEC: 21 mg/l Exposure time: 3 h

Test Type: Respiration inhibition Method: OECD Test Guideline 209

Ascorbic acid:

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)): 1,020 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to microorganisms EC50: 140 mg/l

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Exposure time: 16 h Method: DIN 38 412 Part 8

Titanium dioxide:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l

Exposure time: 72 h

Toxicity to microorganisms : EC50: > 1,000 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

Persistence and degradability

Components:

Sitagliptin Phosphate:

Biodegradability : Result: not rapidly degradable

Biodegradation: 39.7 % Exposure time: 28 d

Method: OECD Test Guideline 314

Stability in water : Hydrolysis: 50 %(401 d)

Method: OECD Test Guideline 111

Cellulose:

Biodegradability : Result: Readily biodegradable.

Simvastatin:

Biodegradability : Result: rapidly degradable

Stability in water : Hydrolysis: 50 %(3.2 d)

Ascorbic acid:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 97 % Exposure time: 5 d

Method: OECD Test Guideline 302

Bioaccumulative potential

Components:

Sitagliptin Phosphate:

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

Partition coefficient: n-

octanol/water

: log Pow: -0.03

Simvastatin:

Partition coefficient: n-

octanol/water

log Pow: > 4.07

Ascorbic acid:

Partition coefficient: n-

octanol/water

log Pow: -1.85

Mobility in soil

Components:

Sitagliptin Phosphate:

Distribution among environ-

mental compartments

: log Koc: 4.37

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Do not dispose of waste into sewer.

Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste

handling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG

Not regulated as a dangerous good

Special precautions for user

Not applicable

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

SECTION 15. REGULATORY INFORMATION

The ingredients of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

CA AB OEL : Canada. Alberta, Occupational Health and Safety Code (table

2: OEL)

CA BC OEL : Canada. British Columbia OEL

CA QC OEL : Québec. Regulation respecting occupational health and safe-

ty, Schedule 1, Part 1: Permissible exposure values for air-

borne contaminants

ACGIH / TWA : 8-hour, time-weighted average CA AB OEL / TWA : 8-hour Occupational exposure limit CA BC OEL / TWA : 8-hour time weighted average

CA QC OEL / TWAEV : Time-weighted average exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk, IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transporta-

according to the Hazardous Products Regulations



Sitagliptin / Simvastatin Formulation

Version Revision Date: SDS Number: Date of last issue: 07/06/2024 8.1 08/11/2025 24487-00026 Date of first issue: 10/21/2014

tion of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety

Data Sheet

Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

cy, http://echa.europa.eu/

Revision Date : 08/11/2025 Date format : mm/dd/yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

CA / Z8