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

1.1. Product identifier

Product No 9973
Product name Cyclosporin A
Reach registration number This substance/mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006.

Contains

Molecular Weight 1202.6239

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

Identified uses For research use only

1.3. Details of the supplier of the safety data sheet

Importer (Applicable in EU only) Cell Signaling Technology Europe B.V.
Schuttersveld 2
2316 ZA Leiden
The Netherlands
TEL: +31 (0)71 7200 200
FAX: +31 (0)71 891 0098
Website www.cellsignal.com
E-mail Address info@cellsignal.eu

Manufacturer Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400

1.4. Emergency telephone number

CHEMTREC 24 hours a day, 7 days a week, 365 days a year
+1 703 527 3887 (INTERNATIONAL) +1 800 424 9300 (NORTH AMERICA)

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>Category 4 - (H302)</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1A - (H350)</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B - (H360)</td>
</tr>
<tr>
<td>Effects on or via lactation</td>
<td>Effects on or via lactation - (H362)</td>
</tr>
</tbody>
</table>

2.2. Label elements
Cyclosporin A

Signal word
Danger

Hazard statement(s)
H302 - Harmful if swallowed
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H362 - May cause harm to breast-fed children

Precautionary statement(s)
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dusts or mists
P263 - Avoid contact during pregnancy/while nursing
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P330 - Rinse mouth
P405 - Store locked up
P501 - Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards
May be harmful if inhaled. May be harmful in contact with skin.

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight %</th>
<th>EC No</th>
<th>Classification (1272/2008)</th>
<th>REACH Registration Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclo(L-alanyl-D-alanyl-N-methyl-L-leucyl-N-methyl-L-leucyl-N-methyl-L-valyl-((3R,4R,6E)-6,7\text{-didehydro-3-hydroxy-N,4-dimethyl}-L-2\text{-aminoctanoyl-L-2-aminobutanoyl-N-methylglycyl-N-methyl-L-leucyl-L-valyl-N-methylleucyl})</td>
<td>59865-13-3</td>
<td>100</td>
<td>-</td>
<td>Acute Tox. 4 (H302) Carc. 1A (H350) Repr. 1B (H360) Lact. (H362)</td>
<td>no data available</td>
</tr>
</tbody>
</table>

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice
Use first aid treatment according to the nature of the injury. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately if symptoms occur. If breathing is difficult, give oxygen.
Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If skin irritation or rash occurs: Get medical advice/attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately if irritation persists.

Ingestion Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

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

Adverse effects from overexposure or overdose may include headache, nausea, central nervous system depression, burning sensation in the mouth, altered taste, hyperesthesia of the hands, burning sensation in the feet, sore gums. flushing of the face, sensation of increased abdominal girth, foot swelling, mild stomach upset, abdominal pain with mild hepatotoxicity, anxiety, diarrhea, vomiting, perspiration, sinus tachycardia, increased blood pressure and headache; vomiting and drowsiness. Principal adverse reactions to cyclosporine therapy are renal dysfunction, tremor, hirsutism, hypertension, hyperlipidemia, gum hyperplasia and nephrotoxicity.

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

Notes to physician Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Water spray. Carbon dioxide (CO₂). Dry chemical. Foam.

Unsuitable Extinguishing Media No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. For personal protection see section 8. Wash thoroughly after handling.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up For dust cleanup use protective equipment. Avoid dust formation. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust.

6.4. Reference to other sections

See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Remove and wash contaminated clothing before re-use. Avoid contact with skin, eyes and clothing. Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. In case of insufficient ventilation, wear suitable respiratory equipment. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Recommended storage temperature -20 °C.

7.3. Specific end use(s)

Use as a laboratory reagent.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls
Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment
Eye/face protection
Safety glasses with side-shields

Skin protection
Hand protection
Impervious gloves.

Other
Wear suitable protective clothing.

Respiratory protection
In case of inadequate ventilation wear respiratory protection.

Environmental Exposure Controls
No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td>No information available</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
<td>No information available</td>
</tr>
<tr>
<td>Color</td>
<td>White to off-white</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>148-151 °C</td>
<td>No information available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Relative density</td>
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</tr>
<tr>
<td>Solubility</td>
<td>Practically insoluble</td>
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</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>
9973 Cyclosporin A

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
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<tbody>
<tr>
<td>Softening point</td>
<td>No information available</td>
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<tr>
<td>Molecular Weight</td>
<td>1202.6239</td>
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<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC content</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization: Hazardous polymerization does not occur.

Hazardous reactions: None under normal processing.

10.4. Conditions to avoid

None known based on information supplied.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapors: Nitrogen oxides (NOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclo[(L-alanyl-D-alanyl-N-methyl-L-leucyl-N-methyl-L-leucyl-N-methyl-L-valyl-[(3R,4R,6E)-6,7-didehydro-3-hydroxy-N,4-dimethyl-L-2-aminooctanoil-L-2-aminobutanoil-N-methylglycyl-N-methyl-L-leucyl-L-valyl-N-methylleucyl)]</td>
<td>= 1480 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. May cause irritation of respiratory tract.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Contact with eyes may cause irritation.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Prolonged contact may cause redness and irritation. May be harmful in contact with skin.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Harmful if swallowed.</td>
</tr>
</tbody>
</table>

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Symptoms
Adverse effects from overexposure or overdose may include headache, nausea, central nervous system depression, burning sensation in the mouth, altered taste, hyperesthesia of the hands, burning sensation in the feet, sore gums, flushing of the face, sensation of increased abdominal girth, foot swelling, mild stomach upset, abdominal pain with mild hepatotoxicity, anxiety, diarrhea, vomiting, perspiration, sinus tachycardia, increased blood pressure and headache; vomiting and drowsiness. Principal adverse reactions to cyclosporine therapy are renal dysfunction, tremor, hirsutism, hypertension, hyperlipidemia, gum hyperplasia and nephrotoxicity.

Skin corrosion/irritation
No information available.

Serious eye damage/eye irritation
No information available.

Sensitization
No information available.

Mutagenic effects
In a single study, Cyclosporin was reported to increase the incidence of chromosomal aberrations in the lymphocytes of kidney transplant patients. It did not induce dominant lethal mutations in mice, chromosomal aberrations in the bone marrow of Chinese hamsters or micronuclei in the bone marrow of Chinese hamsters or mice in vivo. It induced sister chromatid exchange in human peripherallymphocytes in vitro but did not induce gene mutations in Chinese hamster cells. Cyclosporin did not induce mutations in Salmonella typhimurium.

Carcinogenic effects
No information available.

Reproductive toxicity
Nephrotoxicity, a drug side-effect in adults, was identified in experimental animal offspring exposed prenatally to Cyclosporines. Cyclosporines have been reported to cross the human placenta and passes into breast milk.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Target Organ Effects
Kidney, Liver, Central nervous system (CNS), Immune system.

Aspiration Hazard
No information available.

Other information
No information available.

SECTION 12: Ecological information

12.1. Toxicity
No information available.

Unknown Aquatic Toxicity
100% of the mixture consists of components of unknown hazards to the aquatic environment.

12.2. Persistence and degradability
No information available.

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Bioaccumulation</th>
<th>No information available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioconcentration factor (BCF)</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No information available.

12.5. Results of PBT and vPvB assessment
No information available.

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations
13.1. Waste treatment methods

Waste from residues / unused products: Dispose of in accordance with local regulations.
Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

Other information: Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG/IMO
14.1 UN number: Not regulated
14.2 UN proper shipping name: Not regulated
14.3 Transport hazard class(es): Not regulated
14.4 Packing group: Not regulated
14.5 Environmental hazards: None
14.6 Special precautions for user: None

ADR/RID
14.1 UN number: Not regulated
14.2 UN proper shipping name: Not regulated
14.3 Transport hazard class(es): Not regulated
14.4 Packing group: Not regulated
14.5 Environmental hazards: None
14.6 Special precautions for user: None

IATA
14.1 UN number: Not regulated
14.2 UN proper shipping name: Not regulated
14.3 Transport hazard class(es): Not regulated
14.4 Packing group: Not regulated
14.5 Environmental hazards: None
14.6 Special precautions for user: None

SECTION 15: Regulatory information

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

Candidate List of Substances of Very High Concern for Authorization Information
This product does not contain Substances of Very High Concern (SVHC).

SEVESO Directive Information
This product does not contain substances identified in the SEVESO Directive.

International inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA 8(b)</td>
<td>-</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>-</td>
</tr>
<tr>
<td>ENCS</td>
<td>-</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>-</td>
</tr>
<tr>
<td>PICCS</td>
<td>-</td>
</tr>
<tr>
<td>AICS</td>
<td>-</td>
</tr>
</tbody>
</table>

International inventories legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Full text of H-Statements referred to under Sections 2 and 3

H302 - Harmful if swallowed
H350 - May cause cancer if swallowed
H360 - May damage fertility or the unborn child if inhaled.
H362 - May cause harm to breast-fed children

Classification procedure: Expert judgment and weight of evidence determination.
Issuing Date: 2018-04-09

Disclaimer
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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.