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

1.1. Product identifier

Product No 2112
Product name Cycloheximide
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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Index No.</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycloheximide (90 - 100%)</td>
<td>613-140-00-8</td>
<td>66-81-9</td>
</tr>
</tbody>
</table>

Formula C_{15}H_{23}NO_{4}
Molecular Weight 281.35

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

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>Category 1 - (H300)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germ cell mutagenicity</td>
<td>Category 2 - (H341)</td>
</tr>
</tbody>
</table>
2112 Cycloheximide

<table>
<thead>
<tr>
<th>Reproductive toxicity</th>
<th>Category 1B - (H360D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 2 - (H411)</td>
</tr>
</tbody>
</table>

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

2.2. Label elements

Signal word
Danger

Hazard statement(s)
H411 - Toxic to aquatic life with long lasting effects
H341 - Suspected of causing genetic defects
H360D - May damage the unborn child
H300 - Fatal if swallowed

Precautionary statement(s)
P264 - Wash face, hands and any exposed skin thoroughly after handling
P281 - Use personal protective equipment as required
P201 - Obtain special instructions before use. P501 - Dispose of contents/container to an approved waste disposal plant
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P330 - Rinse mouth

2.3. Other hazards

None under normal use conditions

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms
Actidion; Cicloheximide; CHX; Hizarocin; Naramycin; Neocycloheximide;
4-[(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl]piperidine-2,6-dione.

Formula
C_{15}H_{23}NO_{4}

Chemical nature
Monoconstituent substance.

<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>Cycloheximide</td>
<td>66-81-9</td>
<td>100</td>
<td>200-636-0</td>
<td>Acute Tox. 1 (H300)</td>
<td>no data available</td>
</tr>
</tbody>
</table>

For the full text of the R-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures
2112 Cycloheximide

General advice
Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation
Immediate medical attention is required. Move to fresh air. If not breathing, give artificial respiration.

Skin contact
Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Eye contact
Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.

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

Protection of first-aiders
Use personal protective equipment. Avoid contact with skin, eyes and clothing.

4.2. Most important symptoms and effects, both acute and delayed
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

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
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
No information available.

5.2. Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and protective suit.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Use personal protective equipment. Keep people away from and upwind of spill/leak.

For emergency responders
Use personal protection recommended in Section 8.

6.2. Environmental precautions
Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Use personal protective equipment. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid dust formation. Clean contaminated surface thoroughly.

6.4. Reference to other sections
See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage
2112 Cycloheximide

7.1. Precautions for safe handling

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Prevent the formation of vapors, mists and aerosols. Provide regular cleaning of equipment, work area and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children.

7.3. Specific end use(s)

Use as a laboratory reagent.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

8.2. Exposure controls

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

Individual protection measures, such as personal protective equipment
Eye/face protection Tightly fitting safety goggles.
Skin protection
   Hand protection Impervious gloves.
   Other Impervious gloves. Impervious clothing.
Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental Exposure Controls
Local authorities should be advised if significant spillages cannot be contained. Do not allow material to contaminate ground water system. Prevent product from entering drains.

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>pH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>107-120 °C</td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>$4.5 \times 10^{-13}$</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td></td>
<td></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

None under normal use conditions.

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>Cycloheximide</td>
<td>2 mg/kg ( Rat )</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Information on likely routes of exposure

Inhalation
May cause additional affects as listed under "Inhalation".

Eye contact
Contact with eyes may cause irritation.

Skin contact
May cause irritation.

Ingestion
Very toxic if swallowed.

Symptoms
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
2112 Cycloheximide

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Causes skin irritation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Irritating to eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Mutagenic effects</td>
<td>Classified by the European Union as a mutagen of Category 2. Shown to be a weak inducer of DNA fragmentation and micronuclei formation in human hepatocytes cell cultures.</td>
</tr>
<tr>
<td>Carcinogenic effects</td>
<td>No information available.</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B. Several miscarriage and stillbirths were reported among people with previous oral exposure, but no clear mechanistic evidence has been reported in humans. Animal studies using oral exposure have identified dose-dependent toxicity to the reproductive system, such as ovarian lesions and hormonal and menstrual changes (in female rats and monkeys), reduced fertility (in rats), reduced mating index (in male rats), and testicular effects (in male rats and pigs).</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>No information available.</td>
</tr>
<tr>
<td>STOT - repeated exposure</td>
<td>No information available.</td>
</tr>
<tr>
<td>Aspiration Hazard</td>
<td>No information available.</td>
</tr>
<tr>
<td>Other information</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycloheximide</td>
<td>-</td>
<td>LC50 1.6 mg/L (Oryzias latipes) 48 h</td>
<td>-</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

Not readily biodegradable. Biological degradability (28d): 1% @ 100 mg/L.

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Bioconcentration factor (BCF) <0.3 @ 50 ug L\(^{-1}\)

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 Should not be released into the environment. Dispose of in accordance with the European Directives on waste and hazardous waste.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Other information According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. 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  
UN2811

14.2 UN proper shipping name  
Not regulated  (Cycloheximide)

14.3 Transport hazard class(es)  
6.1

14.4 Packing group  
I

14.5 Environmental hazards  
None

14.6 Special precautions for user  
EmS No.

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

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

**ADR/RID**

14.1 UN number  
UN2811

14.2 UN proper shipping name  
Not regulated  (Cycloheximide)

14.3 Transport hazard class(es)  
6.1

14.4 Packing group  
I

14.5 Environmental hazards  
None

14.6 Special precautions for user  
Classification Code  
T2

Tunnel Restriction Code  
(C/E)

**IATA**

14.1 UN number  
UN2811

14.2 UN proper shipping name  
Toxic solid, organic, n.o.s.  (Cycloheximide)

14.3 Transport hazard class(es)  
6.1

14.4 Packing group  
I

14.5 Environmental hazards  
None

14.6 Special precautions for user  
ERG code  
6L

**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**

H1 - Acute Toxic [5 tonnes (Lower-tier) 20 tonnes (Upper-tier)]

**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>-</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

**International inventories legend**

- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List  
- EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
- ENCS - Japan Existing and New Chemical Substances  
- IECSC - China Inventory of Existing Chemical Substances  
- KECL - Korean Existing and Evaluated Chemical Substances
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

H300 - Fatal if swallowed
H341 - Suspected of causing genetic defects if inhaled
H360D - May damage the unborn child
H411 - Toxic to aquatic life with long lasting effects

Classification procedure: Expert judgment and weight of evidence determination.
Issuing Date: 2014-11-24
Revision Date: 2017-07-31

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.