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

1. Product identifier

Product form : Substance
Trade name : Ticarcillin disodium
CAS-No. : 4697-14-7
Product code : T0180
Formula : C15H14N2Na2O6S2
Synonyms : Ticarpen

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

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only. Duchefa Biochemie B.V. products are intended only for "in vitro laboratory" research purposes.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier
Duchefa Biochemie B.V.
A. Hofmanweg 71
2031 BH Haarlem - The Netherlands
T +31(0)23-5319093 - F +31(0)23-5318027
info@duchefa.nl

1.4. Emergency telephone number

Emergency number : Supplier contact information:
+31(0)23-5319093 (M-F 09:00-17:00)
+31(0)6-30109355 (outside office hours)

<table>
<thead>
<tr>
<th>Organisation/Company</th>
<th>Address</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Health Organization world directory of poison centres</td>
<td><a href="http://apps.who.int/poisoncentres/">http://apps.who.int/poisoncentres/</a></td>
<td>Consult website for a local poison centre</td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation, Category 2 : H315
Serious eye damage/eye irritation, Category 2 : H319
Respiratory sensitisation, Category 1 : H334
Specific target organ toxicity — Single exposure, Category 3, : H335
Respiratory tract irritation

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects
No additional information available
2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP): GHS07 GHS08

Signal word (CLP): Danger

Hazard statements (CLP):
- H315 - Causes skin irritation.
- H319 - Causes serious eye irritation.
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 - May cause respiratory irritation.

Precautionary statements (CLP):
- P261 - Avoid breathing dust.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 - IF ON SKIN: Wash with plenty of water.
- P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor
- P305+P351 - IF IN EYES: Rinse cautiously with water for several minutes.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticarcillin disodium</td>
<td>(CAS-No.) 4697-14-7</td>
<td>&gt; 95</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: If you feel unwell, seek medical advice.
First-aid measures after inhalation: Move to fresh air.
First-aid measures after skin contact: Wash off with soap and plenty of water Seek medical attention if irritation develops.
First-aid measures after eye contact: Rinse immediately with plenty of water Get medical advice/attention.
First-aid measures after ingestion: Rinse mouth thoroughly with water.

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

No additional information available
4.3. **Indication of any immediate medical attention and special treatment needed**
No additional information available

**SECTION 5: Firefighting measures**

5.1. **Extinguishing media**
Suitable extinguishing media: Dry chemical powder.
Alcohol resistant foam.
Carbon dioxide (CO2).
Water spray.

5.2. **Special hazards arising from the substance or mixture**
Hazardous decomposition products in case of fire: Under fire conditions, hazardous fumes will be present
- COx
- NOx
- SOx.

5.3. **Advice for firefighters**
Firefighting instructions: Do not enter fire area without proper protective equipment, including respiratory protection.

**SECTION 6: Accidental release measures**

6.1. **Personal precautions, protective equipment and emergency procedures**

6.1.1. **For non-emergency personnel**
Measures in case of dust release: Avoid dust formation. Do not breathe dust.

6.1.2. **For emergency responders**
No additional information available

6.2. **Environmental precautions**
Do not allow product to spread into the environment.

6.3. **Methods and material for containment and cleaning up**
Methods for cleaning up: Sweep up dry powder and dispose properly. Clean contaminated surfaces with an excess of water.

6.4. **Reference to other sections**
No additional information available

**SECTION 7: Handling and storage**

7.1. **Precautions for safe handling**
Precautions for safe handling: Handle in accordance with good industrial hygiene and safety practice.

7.2. **Conditions for safe storage, including any incompatibilities**
Storage conditions: Store in dry, cool, well-ventilated area
Keep container tightly closed.
Moisture sensitive.

Storage temperature: 2 - 8 °C

7.3. **Specific end use(s)**
For professional use only. Duchefa Biochemie B.V. products are intended only for “in vitro laboratory” research purposes.
**SECTION 8: Exposure controls/personal protection**

8.1. Control parameters
No additional information available

8.2. Exposure controls

Hand protection:

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Permeation</th>
<th>Thickness (mm)</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
<td>Nitrile rubber (NBR)</td>
<td>6 (&gt; 480 minutes)</td>
<td>0,11</td>
<td>EN 374</td>
</tr>
</tbody>
</table>

Eye protection:
Safety glasses (to European standard EN 166 or equivalent)

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Wear approved mask. Filter type P2 (EN 143)

**SECTION 9: Physical and chemical properties**

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Powder.
Colour: White.

Odour: No data available
Odour threshold: No data available
pH: No data available
Relative evaporation rate (butylacetate=1): No data available

Melting point: No data available
Freezing point: No data available
Boiling point: No data available
Flash point: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: No data available
Solubility: Water: 50 g/l

Log Pow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available
9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions of storage, handling and use.

10.2. Chemical stability
Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
Moisture.

10.5. Incompatible materials
Strong oxidizers.

10.6. Hazardous decomposition products
In the event of fire, may decompose:
- COx
- NOx
- SOx.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Ticarcillin disodium (4697-14-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

Reproductive toxicity: Not classified
STOT-single exposure: May cause respiratory irritation.
STOT-repeated exposure: Not classified

Aspiration hazard: Not classified
Other information: See actual entry in RTECS for complete information: XM9410000.

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available
12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

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

12.6. Other adverse effects
Additional information: Avoid release to the environment. Prevent entry to sewers and public waters

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with ADR / IATA / IMDG

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1. UN number</td>
<td>Not regulated</td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.2. UN proper shipping name</td>
<td>Not regulated</td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es)</td>
<td>Not regulated</td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.4. Packing group</td>
<td>Not regulated</td>
<td>Not regulated</td>
</tr>
<tr>
<td>14.5. Environmental hazards</td>
<td>Not regulated</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

14.6. Special precautions for user

- Overland transport
  Not regulated

- Transport by sea
  Not regulated

- Air transport
  Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
  Not applicable
SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
Ticarcillin disodium is not on the REACH Candidate List
Ticarcillin disodium is not on the REACH Annex XIV List

15.1.2. National regulations

Ensure all national/local regulations are observed.

Germany
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV: Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
SZW-lijst van kankerverwekkende stoffen: The substance is not listed
SZW-lijst van mutagene stoffen: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling: The substance is not listed

Denmark
Recommendations Danish Regulation: Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes:

| 1.4 | Emergency number | Modified |
| 8.2 | Hand protection | Modified | Specified material, thickness, etcetera of gloves |

Abbreviations and acronyms:

ATE Acute Toxicity Estimate
ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
BCF Bioconcentration factor
CLP Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DPD Dangerous Preparations Directive 1999/45/EC
DSD Dangerous Substances Directive 67/548/EEC
IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
LC50 Median lethal concentration
LD50 Median lethal dose
LOAEL Lowest Observed Adverse Effect Level
NOAEC No-Observed Adverse Effect Concentration
PBT Persistent Bioaccumulative Toxic
Full text of H- and EUH-statements:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td>Resp. Sens. 1</td>
<td>Respiratory sensitisation, Category 1</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation, Category 2</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitisation, Category 1</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation</td>
</tr>
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SDS Biochemicals version 2018

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.