1. IDENTIFICATION

Product identifier

Product Name

Capa™ 2043

Other means of identification

Pure substance/mixture

Mixture

Recommended use of the chemical and restrictions on use

Application

Manufacture of polyurethane, Footwear industry, Construction, Automotive industry, Paint

Uses advised against

Not identified.

Details of the supplier of the safety data sheet

Manufacturer Address

Perstorp UK Ltd
Baronet Road
Warrington
Cheshire WA4 6HA
United Kingdom
Tel. +44 (0) 1925 591111
www.perstorp.com

Supplier Address

Perstorp Polyols, Inc.
600 Matzinger Road
Toledo, Ohio 43612
Tel: 419-729-5448/ 800-537-0280
www.perstorp.com

E-mail address

productinfo@perstorp.com

Emergency telephone number

USA

(+1) 866 519 4752 (contract no: 334101)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.122)

Label elements

Symbols/Pictograms

Not applicable

Signal word

None

Hazard statements

Not applicable

Precautionary Statements

Not applicable

Supplementary hazard information

Not applicable

Hazard not otherwise classified (HNOC)

Other hazards

Harmful to aquatic life.

Unknown Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity
3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Oxepanone, polymer with 1,4-butanediol</td>
<td>31831-53-5</td>
<td>&gt;=97</td>
</tr>
</tbody>
</table>

Additional information
2-Oxepanone, polymer with 1,4-butanediol; Substance of unknown or variable composition, complex reaction products or biological material (UVCB). Contains: Butane-1,4-diol

4. FIRST AID MEASURES

Description of first aid measures

Inhalation
First aid measures not required, but get fresh air for personal comfort.

Skin contact
First aid measures not required, but wash exposed skin with soap and water for hygienic reasons.

Eye contact
First aid measures not required, but rinse opened eye under running water for personal comfort to avoid mechanical irritation.

Ingestion
Rinse mouth with water. If a large quantity has been ingested or you feel unwell, get medical advice/attention.

Most important symptoms and effects, both acute and delayed
No information available.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Water spray (fog), Carbon dioxide (CO2), Foam, Extinguishing powder.

Unsuitable extinguishing media
High volume water jet.

Specific hazards arising from the chemical
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide (CO), Monomer (2-Oxepanone, Hexan-6-Olide, CAS 502-44-3).

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit. Use personal protective equipment as required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear safety glasses, gloves, protective clothing and rubber boots for hygienic reasons.

Environmental precautions
Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up
Methods for containment
Prevent further leakage or spillage if safe to do so
Small spill: Absorb non-recoverable liquid with inert absorbant material.
Large spill: Pump up the product into a spare container suitably labelled.

Methods for cleaning up
Clean contaminated surface thoroughly: Water (with cleaning agent).

Reference to other sections
See Section 7, 8, 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling
Wear personal protective equipment according to section 8 if risk of exposure. Keep away from heat. Protect from direct sunlight.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wash hands before breaks and after work. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Keep/store only in original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure Guidelines
Users are advised to consider national Occupational Exposure Limits or other equivalent values, (if existing).

Appropriate engineering controls
Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment
Eye/face protection: Wear safety glasses with side shields (or goggles).
Hand Protection: Protective gloves not really required. However, we recommend using protective gloves made of rubber. PVC gloves, Chloroprene rubber, CR, Butyl rubber.
Skin and body protection: Normal work clothes for the chemical industry (long-legged pants and sleeves).
Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odor threshold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>5.2</td>
<td>water solution (10 %)</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>-58-8°C / -14-67°C</td>
<td>DSC (Differential Scanning Calorimetry)</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td></td>
<td>Decomposes, ASTM E 537-02</td>
</tr>
<tr>
<td>Flash point</td>
<td>192 °C</td>
<td>ASTM D3278-96 CC (closed cup)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td></td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive limits</td>
<td></td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosive limits</td>
<td></td>
<td>@ 25 °C</td>
</tr>
<tr>
<td>Lower explosive limits</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt;1 Pa</td>
<td></td>
</tr>
<tr>
<td>Vapor density</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter.

Chemical stability
The product is stable at normal conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
To avoid thermal decomposition, do not overheat.

Incompatible materials
Avoid contact with acids. Avoid contact with bases.

Hazardous decomposition products
Possible decomposition and release of monomer at temperatures above 200° C.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Oral. Dermal.

Symptoms related to the physical, chemical and toxicological characteristics
None known.

Numerical measures of toxicity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEmix (oral)</td>
<td>&gt;5000 mg/kg</td>
</tr>
<tr>
<td>ATEmix (dermal)</td>
<td>7802</td>
</tr>
<tr>
<td>ATEmix (inhalation-vapor)</td>
<td>33 mg/l</td>
</tr>
<tr>
<td>Unknown Acute Toxicity</td>
<td>0 % of the mixture consists of ingredient(s) of unknown toxicity</td>
</tr>
</tbody>
</table>

Acute toxicity
Product does not present an acute toxicity hazard based on known or supplied information.

Product Information

<table>
<thead>
<tr>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Effective dose</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD 401</td>
<td>Rat</td>
<td>Oral</td>
<td>&gt;5000</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Non-irritating to the skin.
12. ECOLOGICAL INFORMATION

Toxicity
Harmful to aquatic life.

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Product Information
<table>
<thead>
<tr>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Effective dose</th>
<th>Exposure time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 203: Fish, Acute Toxicity Test</td>
<td>Brachydanio rerio</td>
<td>Freshwater</td>
<td>72</td>
<td>96h</td>
<td>LD50 (lethal dose) mg/l</td>
</tr>
<tr>
<td>OECD Test No. 202: Daphnia sp. Acute Immobilization Test</td>
<td>Daphnia magna</td>
<td>Freshwater</td>
<td>290</td>
<td>48h</td>
<td>EC50 (effective concentration) mg/l</td>
</tr>
<tr>
<td>OECD Test No. 201: Freshwater Alga and Cyanobacteria, Growth</td>
<td>Pseudokirchneriella subcapitata</td>
<td>Freshwater</td>
<td>165</td>
<td>72h</td>
<td>ErC50 mg/l</td>
</tr>
</tbody>
</table>
Persistence and degradability
Readily biodegradable.

Product Information

<table>
<thead>
<tr>
<th>Method</th>
<th>Value</th>
<th>Exposure time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 301B: Ready Biodegradability: CO2 Evolution Test (TG 301 B)</td>
<td>60%</td>
<td>7d</td>
<td>Readily biodegradable</td>
</tr>
<tr>
<td>OECD Test No. 301B: Ready Biodegradability: CO2 Evolution Test (TG 301 B)</td>
<td>84%</td>
<td>28d</td>
<td>Readily biodegradable</td>
</tr>
<tr>
<td>OECD Test No. 111: Hydrolysis as a Function of pH</td>
<td>t½=27h (pH=9)</td>
<td>5d</td>
<td>Hydrolysis</td>
</tr>
<tr>
<td>OECD Test No. 111: Hydrolysis as a Function of pH</td>
<td>(pH 4,7)</td>
<td>5d</td>
<td>Stable</td>
</tr>
</tbody>
</table>

Bioaccumulative potential
Based on the partition coefficients of the ingredients the product is not expected to bioaccumulate in organisms.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Oxepanone, polymer with 1,4-butanediol</td>
<td>2.5</td>
<td></td>
</tr>
</tbody>
</table>

Mobility in soil
No information available.

Other adverse effects
No information available.

Additional information
Do not allow into any sewer, on the ground or into any body of water.

13. DISPOSAL CONSIDERATIONS

Disposal methods
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging
Thoroughly emptied and clean packaging may be recycled. Contaminated packaging materials must be disposed of in the same manner as the product.

14. TRANSPORT INFORMATION

DOT Road transport
Not regulated

RID Rail transport
Not regulated

IMDG Sea transport
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not regulated

IATA Air transport
Not regulated

15. REGULATORY INFORMATION

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

International Regulations
Not applicable.

**US Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**CWA (Clean Water Act)**
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**US State Regulations**

**California Proposition 65**
This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**
Not applicable

**16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION**

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>Not available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

Key or legend to abbreviations and acronyms used in the safety data sheet
Not applicable

**Issue Date**
29-Dec-2016

**Revision Date**
29-Dec-2016

**Revision Note**
No information available


**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.

End of Safety Data Sheet