1. IDENTIFICATION

Product identifier

Product Name

2-Ethylhexanoic Acid

Chemical Name

2-Ethylhexanoic acid

CAS No

149-57-5

Other means of identification

Pure substance/mixture

Substance

Recommended use of the chemical and restrictions on use

Application

Chemical intermediate

Uses advised against

Not identified.

Details of the supplier of the safety data sheet

Manufacturer Address

Perstorp Oxo AB
SE-444 84 Stenungsund
Sweden
Tel. +46 303 728600
Fax. +46 303 728607
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 considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Reproductive toxicity - Category 2

Label elements

Symbols/Pictograms

Signal word

Warning

Hazard statements

Suspected of damaging fertility or the unborn child

Precautionary Statements

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
IF exposed or concerned: Get medical advice/attention
Store locked up
Dispose of contents/container to an approved waste disposal plant

Contains: 2-Ethylhexanoic acid

Supplementary hazard information
No information available

Hazards not otherwise classified (HNOC)
May be harmful if swallowed
Harmful to aquatic life

Unknown Acute Toxicity
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-Ethylhexanoic acid</td>
<td>149-57-5</td>
<td>99.5</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice
Emergency eyewash facilities must be located in the vicinity of where the product is handled.

Inhalation
Remove to fresh air. Rinse mouth with water. If irrigation persists get medical advice/attention.

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Eye contact
Immediately flush eyes, also under eyelids, with water for at least 5-10 minutes. Use lukewarm water if possible. Get medical attention.

Ingestion
Rinse mouth then drink plenty of water. Seek immediate medical attention/advice.

Self-protection of the first aider
Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed
May cause harm to the unborn child.

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

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Water, Foam, Carbon dioxide (CO2).

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.

Hazardous combustion products
Carbon monoxide (CO), Carbon dioxide (CO2).
Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit. Use personal protective equipment as required.

Additional information
Use water spray jet to protect personnel and to cool endangered containers. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and inhalation of vapors. Use personal protection recommended in Section 8.

Environmental precautions
Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained. 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 with earth, sand or other non-combustible material and transfer to containers for later disposal
- Large spill: Pump up the product into a spare container suitably labelled.

Methods for cleaning up
Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

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

7. HANDLING AND STORAGE

Precautions for safe handling
Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding. Ensure good ventilation at the work station. Wear personal protective equipment according to section 8 if risk of exposure. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexanoic acid</td>
<td>TWA: 5 mg/m³ inhalable fraction and vapor</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Appropriate engineering controls
Emergency shower and eye wash facilities must exist in the work place.
Ensure adequate ventilation

Individual protection measures, such as personal protective equipment

<table>
<thead>
<tr>
<th>Eye/face protection</th>
<th>Hand Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tight sealing safety goggles</td>
<td>Wear protective gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.</td>
</tr>
<tr>
<td>Property</td>
<td>Value</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>pH</td>
<td>3.5</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>-20 °C / -4 °F</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>228 °C / 442 °F</td>
</tr>
<tr>
<td>Flash point</td>
<td>114 °C / 237 °F</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td></td>
</tr>
<tr>
<td>Explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper explosive limits</td>
<td>6.7 Vol-%</td>
</tr>
<tr>
<td>Lower explosive limits</td>
<td>0.9 Vol-%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.004 kPa</td>
</tr>
<tr>
<td>Vapor density</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>1.5 g/L</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>2.7</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>335 °C / 635 °F</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.906 g/cm³</td>
</tr>
<tr>
<td>Bulk density</td>
<td></td>
</tr>
</tbody>
</table>

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

**Appearance**
- liquid
- colorless

**Odor**
- sweet

**Odor threshold**
- No data available

**Other Information**
- No information available

**10. STABILITY AND REACTIVITY**

**Reactivity**
2-Ethylhexanoic acid is a carboxylic acid and will react with all bases, both organic and inorganic by the evolution of substantial amounts of heat. The substance can be oxidized by strong oxidizing agents and reduced by strong reducing agents. It may initiate polymerization reactions and may, like other acids, they catalyze chemical reactions.

**Chemical stability**
- Stable under normal conditions.

**Possibility of Hazardous Reactions**
- Reacts with cyanide salts to generate gaseous hydrogen cyanide. Flammable and/or toxic gases and heat are generated by
the reaction with diazo compounds, dithiocarbamates, isocyanates, mercaptans, nitrides, and sulfides. Reaction with carbonates and bicarbonates generates carbon dioxide and heat.

**Conditions to avoid**
Keep away from ignition sources.

**Incompatible materials**
Strong oxidizing agents

**Hazardous decomposition products**
Thermal decomposition can lead to release of irritating and toxic gases and vapors: Carbon monoxide (CO), Carbon dioxide (CO2).

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**
Dermal. Inhalation.

**Symptoms related to the physical, chemical and toxicological characteristics**
See Section 4 for more information.

**Numerical measures of toxicity**

**Acute toxicity**
Product does not present an acute toxicity hazard based on known or supplied 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 Test No. 401: Acute Oral Toxicity</td>
<td>Rat</td>
<td>Oral</td>
<td>3640</td>
<td>LD50 (lethal dose) mg/kg</td>
</tr>
<tr>
<td>OECD Test No. 402: Acute Dermal Toxicity</td>
<td>Rat</td>
<td>Dermal</td>
<td>&gt;2000</td>
<td>LD0 mg/kg</td>
</tr>
<tr>
<td>OECD Test No. 403: Acute Inhalation Toxicity</td>
<td>Rat</td>
<td>Inhalation</td>
<td>0.11</td>
<td>LC0 (8h) mg/l</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Slightly irritating but not relevant for classification.

<table>
<thead>
<tr>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 404: Acute Dermal Irritation/Corrosion</td>
<td>Rabbit</td>
<td>Dermal</td>
<td>Slightly irritating.</td>
</tr>
</tbody>
</table>

**Serious eye damage/eye irritation**
Slightly irritating but not relevant for classification.

<table>
<thead>
<tr>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 405: Acute Eye Irritation/Corrosion</td>
<td>Rabbit</td>
<td>Eye</td>
<td>Slightly irritating.</td>
</tr>
</tbody>
</table>

**Respiratory or skin sensitization**
No sensitising effects known.

<table>
<thead>
<tr>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 406: Skin Sensitization</td>
<td>Guinea pig</td>
<td>Skin</td>
<td>Not a skin sensitizer</td>
</tr>
</tbody>
</table>

**Germ cell mutagenicity**
Not mutagenic.

### 2-Ethylhexanoic Acid (149-57-5)
Carcinogenicity
No information available.

Reproductive toxicity
The substance has been shown to be teratogenic in animal studies.

### 2-Ethylhexanoic acid (149-57-5)

<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 Test No. 415: One-Generation Reproduction Toxicity Study</td>
<td>Rat</td>
<td>Oral</td>
<td>100 mg/kg bw/day</td>
<td>NOAEL Developmental Toxicity (F1)</td>
</tr>
<tr>
<td>OECD Test No. 415: One-Generation Reproduction Toxicity Study</td>
<td>Rat</td>
<td>Oral</td>
<td>300 mg/kg bw/day</td>
<td>NOAEL Developmental Toxicity (P)</td>
</tr>
<tr>
<td>OECD Test No. 414: Prenatal Development Toxicity Study</td>
<td>Rat</td>
<td>Oral</td>
<td>250 mg/kg bw/day</td>
<td>NOAEL Developmental Toxicity (P1)</td>
</tr>
<tr>
<td>OECD Test No. 414: Prenatal Development Toxicity Study</td>
<td>Rat</td>
<td>Oral</td>
<td>100 mg/kg bw/day</td>
<td>NOAEL Developmental Toxicity (P2)</td>
</tr>
</tbody>
</table>

**STOT - single exposure**
No known effect

**STOT - repeated exposure**

### 2-Ethylhexanoic acid (149-57-5)

<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>EPA OTS 795.2600</td>
<td>Mouse</td>
<td>Oral</td>
<td>200 mg/kg bw/day</td>
<td>NOAEL Exposure to higher concentrations than NOAEL was associated with growth retardation, increased liver weight and hepatocyte hypertrophy. In addition, in the highest dose groups decreased food consumption and body weights were observed. At the end of the recovery period (4 weeks), the observed changes had practically disappeared.</td>
</tr>
<tr>
<td>EPA OTS 795.2600</td>
<td>Rat</td>
<td>Oral</td>
<td>300 mg/kg bw/day</td>
<td>NOAEL</td>
</tr>
</tbody>
</table>

Aspiration hazard
No information available.

### 12. ECOLOGICAL INFORMATION

**Toxicity**
Harmful to aquatic life.

<table>
<thead>
<tr>
<th>2-Ethylhexanoic acid (149-57-5)</th>
<th>Method</th>
<th>Species</th>
<th>Exposure route</th>
<th>Effective dose</th>
<th>Exposure time</th>
<th>Remarks</th>
</tr>
</thead>
</table>
2-Ethylhexanoic Acid

Persistence and degradability
Readily biodegradable.

<table>
<thead>
<tr>
<th>Method</th>
<th>Value</th>
<th>Exposure time</th>
<th>Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 301E: Ready Biodegradability: Modified OECD Screening Test (TG 301 E)</td>
<td>99%</td>
<td>28d</td>
<td>Readily biodegradable</td>
</tr>
</tbody>
</table>

Bioaccumulative potential
The bioaccumulation potential is low (log Pow = 2.7).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexanoic acid</td>
<td>2.7</td>
<td></td>
</tr>
</tbody>
</table>

Mobility in soil
The substance does not adsorb to suspended solids and sediment based upon the log Koc which indicates a high mobility in soil.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Log Koc</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexanoic acid</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available

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

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

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td></td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td></td>
</tr>
<tr>
<td>Fire hazard</td>
<td></td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td></td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td></td>
</tr>
</tbody>
</table>

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

NFPA

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health hazards</td>
<td>0</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Instability</td>
<td>0</td>
</tr>
</tbody>
</table>

HMIS

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health hazards</td>
<td>2*</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>0</td>
</tr>
</tbody>
</table>

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

Issue Date 21-Apr-2016
Revision Date 20-Apr-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