1. IDENTIFICATION

Product identifier

Product Name

2-Ethylhexanol

Chemical Name

2-Ethylhexan-1-ol

CAS No

104-76-7

Other means of identification

Pure substance/mixture

Substance

Recommended use of the chemical and restrictions on use

Application

Use: in coatings, in functional fluids, in cleaning agents and in oil and gas field drilling.

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)

Acute toxicity - Inhalation (Vapors) - Category 4

Skin corrosion/irritation - Category 2

Serious eye damage/eye irritation - Category 2A

Specific target organ toxicity (single exposure) - Category 3

Flammable liquids - Category 4

Label elements

Symbols/Pictograms

Signal word

Warning

Hazard statements

Harmful if inhaled
2-Ethylhexanol

Revision Date 01-May-2016

Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation
Combustible liquid

Precautionary Statements
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves and eye/face protection
Call a POISON CENTER or doctor if you feel unwell
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF ON SKIN: Wash with plenty of water and soap

Contains: 2-Ethylhexan-1-ol

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-Ethylhexan-1-ol</td>
<td>104-76-7</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice
Remove any clothing soiled by the product.

Inhalation
Remove to fresh air. If irritation persists get medical advice/attention.

Skin contact
Immediately flush skin with water and rinse skin with soap and water for at least 5-10 minutes. Use lukewarm water if possible. Remove contaminated clothing and shoes. Get medical attention if redness does not disappear.

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
Do NOT induce vomiting. Call a physician or poison control center immediately.

Self-protection of the first aider
Avoid any direct contact with the product.

Most important symptoms and effects, both acute and delayed

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

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Carbon dioxide (CO2). Water spray (fog). Extinguishing powder. Alcohol resistant foam.

Unsuitable extinguishing media
Do not use a solid water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**
Vapours are heavier than air and may spread along floors. Vapors may form explosive mixtures with air.

**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. Stay upwind.

### 6. ACCIDENTAL RELEASE MEASURES

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

**Personal precautions**
Keep people away from and upwind of spill/leak. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition.

**Environmental precautions**
Do not allow into any sewer, on the ground or into any body of water. See Section 12 for additional ecological information. Local authorities should be advised if significant spillages cannot be contained.

**Methods and material for containment and cleaning up**

**Methods for containment**
- bunding, covering of drains

**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 8 for more information. See section 13 for more information.

### 7. HANDLING AND STORAGE

**Precautions for safe handling**
If possible, use only in closed system. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Use personal protection recommended in Section 8. Ensure good ventilation at the work station. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

**Conditions for safe storage, including any incompatibilities**
Keep tightly closed in a dry and cool place.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

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

**Appropriate engineering controls**
Emergency shower and eye wash facilities must exist in the work place. Ensure adequate ventilation, especially in confined areas.

**Individual protection measures, such as personal protective equipment**
- Eye/face protection
- Tight sealing safety goggles.
Hand Protection

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.

<table>
<thead>
<tr>
<th>Duration of contact</th>
<th>Material</th>
<th>Glove thickness</th>
<th>Break through time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable materials also with prolonged, direct contact (corresponding &gt; 480 minutes of permeation time):</td>
<td>Nitrile rubber, NBR</td>
<td>&gt;=0.55 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suitable materials also with prolonged, direct contact (corresponding &gt; 480 minutes of permeation time):</td>
<td>Polyvinyl chloride (PVC)</td>
<td>&gt;=0.8 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin and body protection
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection
Suitable respiratory protection for lower concentrations or short-term exposure:
Gas filter for gases/vapours of organic compounds (boiling point >65°C e.g. organic vapor/gas cartridge)
Suitable respiratory protection for higher concentrations or long-term exposure:
Self-contained breathing apparatus.

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 liquid</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Odor unpleasing</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.08 ppm</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>&lt; -20 °C / -4 °F</td>
<td>OECD Test No. 103: Boiling Point</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>186 °C / 367 °F</td>
<td>ASTM D 7094-04 CC (closed cup)</td>
</tr>
<tr>
<td>Flash point</td>
<td>75 °C / 167 °F</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Upper explosive limits</td>
<td>12.7 %</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower explosive limits</td>
<td>1.1 %</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.03 kPa</td>
<td>@ 25 °C Calculation method</td>
</tr>
<tr>
<td>Vapor density</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Relative density</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>水溶性</td>
<td>0.9 g/L</td>
<td>@ 20 °C OECD Test No. 105: Water Solubility</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>2.9</td>
<td>log POW (@25°C) OECD Test No. 117: Partition Coefficient (n-octanol/water), HPLC Method</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>260 °C / 500 °F</td>
<td>ASTM E 659-78</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>9.7 mPa s</td>
<td>ISO 3219</td>
</tr>
<tr>
<td>Explosive properties</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td></td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>0.832 g/cm³</td>
<td>@20°C, ISO 2811-2</td>
</tr>
<tr>
<td>Bulk density</td>
<td></td>
<td>No information available</td>
</tr>
</tbody>
</table>

Other Information
No information available

10. STABILITY AND REACTIVITY

Reactivity
The substance is an alcohol. Alcohols exhibit both weak acid and weak base behavior. They may initiate the polymerization of isocyanates and epoxides.
Chemical stability
Stable under normal conditions.

Possibility of Hazardous Reactions
Reacts with: Oxidizing substances, Acids.

Conditions to avoid
No information available.

Incompatible materials
No information available.

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
Harmful if inhaled.

<table>
<thead>
<tr>
<th>2-Ethylhexan-1-ol (104-76-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
</tr>
<tr>
<td>OECD Test No. 401: Acute Oral Toxicity</td>
</tr>
<tr>
<td>OECD Test No. 402: Acute Dermal Toxicity</td>
</tr>
<tr>
<td>OECD Test No. 403: Acute Inhalation Toxicity</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Irritating to skin.

<table>
<thead>
<tr>
<th>2-Ethylhexan-1-ol (104-76-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
</tr>
<tr>
<td>OECD Test No. 404: Acute Dermal Irritation/Corrosion</td>
</tr>
</tbody>
</table>

Serious eye damage/eye irritation
Causes serious eye irritation.

<table>
<thead>
<tr>
<th>2-Ethylhexan-1-ol (104-76-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
</tr>
<tr>
<td>OECD Test No. 405: Acute Eye Irritation/Corrosion</td>
</tr>
</tbody>
</table>

Respiratory or skin sensitization
No sensitising effects known.

<table>
<thead>
<tr>
<th>2-Ethylhexan-1-ol (104-76-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
</tr>
<tr>
<td>human data</td>
</tr>
</tbody>
</table>

Germ cell mutagenicity
The product is not considered to be mutagenic.

### 2-Ethylhexanol-1-ol (104-76-7)

<table>
<thead>
<tr>
<th>Method</th>
<th>Species</th>
<th>Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 471: Bacterial Reverse Mutation Test OECD 472</td>
<td>in vitro</td>
<td>Negative</td>
</tr>
<tr>
<td>OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test</td>
<td>in vitro</td>
<td>Negative</td>
</tr>
<tr>
<td>OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test</td>
<td>in vitro</td>
<td>Negative</td>
</tr>
</tbody>
</table>

#### Carcinogenicity

No information available.

<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. 451: Carcinogenicity Studies</td>
<td>Mouse</td>
<td>Oral</td>
<td>750</td>
<td>mg/kg bw/day NOAEL No carcinogenic effects have been observed.</td>
</tr>
<tr>
<td>OECD Test No. 451: Carcinogenicity Studies</td>
<td>Rat</td>
<td>Oral</td>
<td>500</td>
<td>mg/kg bw/day NOAEL No carcinogenic effects have been observed.</td>
</tr>
</tbody>
</table>

#### Reproductive toxicity

Is not considered hazardous to the reproduction.

<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. 414: Prenatal Development Toxicity Study</td>
<td>Mouse</td>
<td>Oral</td>
<td>191</td>
<td>mg/kg bw/day NOAEL Developmental Toxicity</td>
</tr>
<tr>
<td>OECD Test No. 414: Prenatal Development Toxicity Study</td>
<td>Rat</td>
<td>Dermal</td>
<td>2520</td>
<td>mg/kg NOAEL Developmental Toxicity</td>
</tr>
<tr>
<td>OECD Test No. 414: Prenatal Development Toxicity Study</td>
<td>Rat</td>
<td>Inhalation</td>
<td>850</td>
<td>ppm NOAEC</td>
</tr>
<tr>
<td>OECD Test No. 416: Two-Generation Reproduction Toxicity</td>
<td>Rat</td>
<td>Oral</td>
<td>10000</td>
<td>ppm NOAEL F1/F2-gen. read-across from supporting substance (structural analogue)</td>
</tr>
<tr>
<td>OECD Test No. 416: Two-Generation Reproduction Toxicity</td>
<td>Rat</td>
<td>Oral</td>
<td>3000</td>
<td>ppm NOAEL F1/F2-gen. read-across from supporting substance (structural analogue)</td>
</tr>
</tbody>
</table>

#### STOT - single exposure

Irritating to respiratory system

<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></td>
<td>human data</td>
<td></td>
<td></td>
<td>Irritating to respiratory system</td>
</tr>
</tbody>
</table>

#### STOT - repeated exposure

<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. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents</td>
<td>Rat</td>
<td>Oral</td>
<td>250</td>
<td>mg/kg bw/day NOAEL</td>
</tr>
<tr>
<td>OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents</td>
<td>Mouse</td>
<td>Oral</td>
<td>250</td>
<td>mg/kg bw/day NOAEL</td>
</tr>
<tr>
<td>OECD Test No. 413: Subchronic Inhalation Toxicity: 90-day Study</td>
<td>Rat</td>
<td>Inhalation</td>
<td>638.4</td>
<td>mg/m³ NOAEC</td>
</tr>
</tbody>
</table>
12. ECOLOGICAL INFORMATION

Toxicity

Harmful to aquatic life.

<table>
<thead>
<tr>
<th>2-Ethylhexan-1-ol (104-76-7)</th>
<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>Regulation (EC) No. 440/2008, Annex, C.1</td>
<td>Leuciscus idus</td>
<td>Freshwater</td>
<td>17.1</td>
<td>96h</td>
<td>mg/l LC50 (lethal concentration)</td>
<td></td>
</tr>
<tr>
<td>Regulation (EC) No. 440/2008, Annex, C.2</td>
<td>Daphnia pulex</td>
<td>Freshwater</td>
<td>39</td>
<td>48h</td>
<td>mg/l EC50 (effective concentration)</td>
<td></td>
</tr>
<tr>
<td>Regulation (EC) No. 440/2008, Annex, C.3</td>
<td>Scenedesmus subspicatus</td>
<td>Freshwater</td>
<td>11.5</td>
<td>72h</td>
<td>mg/l EC50 (effective concentration)</td>
<td></td>
</tr>
<tr>
<td>ETAD Fermentation Tube Method</td>
<td></td>
<td></td>
<td>&gt;300</td>
<td>24h</td>
<td>mg/l NOEC</td>
<td></td>
</tr>
<tr>
<td>OECD Test No. 203: Fish, Acute Toxicity Test</td>
<td>Pimephales promelas</td>
<td>Freshwater</td>
<td>28.2</td>
<td>96h</td>
<td>mg/l LC50 (lethal concentration)</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and degradability

Readily biodegradable.

<table>
<thead>
<tr>
<th>2-Ethylhexan-1-ol (104-76-7)</th>
<th>Method</th>
<th>Value</th>
<th>Exposure time</th>
<th>Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test No. 301C: Ready Biodegradability: Modified MITI Test (I) (TG 301 C)</td>
<td>79-99.9%</td>
<td>14d</td>
<td>Readily biodegradable</td>
<td></td>
</tr>
</tbody>
</table>

Bioaccumulative potential

Not potentially bioaccumulable.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexan-1-ol</td>
<td>2.9</td>
<td>38</td>
</tr>
</tbody>
</table>

Mobility in soil

The substance is not expected to adsorb to a high degree to suspended solids and sediment based upon the log Pow.

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

UN/ID no | NA1993
UN proper shipping name | Combustible liquid, n.o.s.
Proper Shipping Description | NA1993, Combustible liquid, n.o.s. (2-ETHYLHEXAN-1-OL), Combustible liquid, III
Transport hazard class(es) | Combustible liquid
Packing Group | III
2-Ethylhexanol

Revision Date 01-May-2016

Special precautions for user
IB3, T1, T4, TP1
Emergency Response Guide Number
128

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

NFPA
Health hazards 2
Flammability 2
Instability 0

HMIS
Health hazards 2
Flammability 2
Physical hazards 0

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

Issue Date 02-May-2016
Revision Date 01-May-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