1. Identification

Product Name 1-Pentanol

Cat No. AC160600000; AC160600010; AC160600025; AC160600250; AC160600251

Synonyms Pentyl alcohol; n-Amyl alcohol

Recommended Use Laboratory chemicals.

Uses advised against No Information available

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Inhalation Toxicity - Vapors</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin Corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

Target Organs - Respiratory system.
Target Organs - Liver, Kidney.

Label Elements

Signal Word Warning

Hazard Statements
Flammable liquid and vapor
Causes skin irritation
Causes serious eye irritation
Harmful if inhaled
May cause respiratory irritation
Precautionary Statements
Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified
Other hazards
Stench.

### 3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>71-41-0</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**General Advice**
If symptoms persist, call a physician.

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Inhalation
Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms/effects
None reasonably foreseeable. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media
No information available

Flash Point
49 °C / 120.2 °F

Autoignition Temperature
300 °C / 572 °F

Explosion Limits
Upper 10.5 Vol%
Lower 1.3 Vol%

Sensitivity to Mechanical Impact
No information available

Sensitivity to Static Discharge
No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO₂)

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection
Exposure Guidelines

This product does not contain any known or suspected reproductive hazards.

Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Long sleeved clothing.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Stench</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>7  25 g/l water</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-78 °C / -108.4 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>137 - 139 °C / 278.6 - 282.2 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>49 °C / 120.2 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>10.5 Vol%</td>
</tr>
<tr>
<td>Upper</td>
<td>1.3 Vol%</td>
</tr>
<tr>
<td>Lower</td>
<td>2.6 mbar</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.0 (Air = 1.0)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.811</td>
</tr>
<tr>
<td>Solubility</td>
<td>22 g/L water (22°C)</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>300 °C / 572 °F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>4 mPa s at 20 °C</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C5 H12 O</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>88.15</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactive Hazard

None known, based on information available.

Stability

Hygroscopic.

Conditions to Avoid

Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products. Exposure to moist air or water.

Incompatible Materials

Strong oxidizing agents, Metals.

Hazardous Decomposition Products

Carbon monoxide (CO), Carbon dioxide (CO₂)
1-Pentanol

11. Toxicological information

Acute Toxicity

Product Information

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>&gt;2000 mg/kg (Rat)</td>
<td>&gt;2000 mg/kg (Rabbit)</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products

No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation

Irritating to eyes, respiratory system and skin

Sensitization

No information available

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>71-41-0</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects

No information available

Reproductive Effects

No information available.

Developmental Effects

No information available.

Teratogenicity

No information available.

STOT - single exposure

Respiratory system

STOT - repeated exposure

Liver Kidney

Aspiration hazard

No information available

Symptoms / effects, both acute and delayed

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information

No information available

Other Adverse Effects

The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Do not empty into drains.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>EC50: 1100 mg/L, 24h (Desmodesmus subspicatus)</td>
<td>LC50: 370 - 490 mg/L, 96h static (Oncorhynchus mykiss)</td>
<td>Not listed</td>
<td>EC50: 341 mg/L, 48h (Daphnia magna)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: 650 mg/L, 96h static (Leponia macrochirus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: 530 mg/L, 96h static (Brachydanio rerio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50: 437 - 511 mg/L, 96h flow-through (Pimephales promelas)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability

Soluble in water Persistence is unlikely based on information available.
Bioaccumulation/Accumulation

No information available.

Mobility

Will likely be mobile in the environment due to its water solubility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>1.4</td>
</tr>
</tbody>
</table>

13. Disposal considerations

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

- UN-No: UN1105
- Proper Shipping Name: PENTANOLS
- Hazard Class: 3
- Packing Group: III

TDG

- UN-No: UN1105
- Proper Shipping Name: PENTANOLS
- Hazard Class: 3
- Packing Group: III

IATA

- UN-No: UN1105
- Proper Shipping Name: PENTANOLS
- Hazard Class: 3
- Packing Group: III

IMDG/IMO

- UN-No: UN1105
- Proper Shipping Name: PENTANOLS
- Hazard Class: 3
- Packing Group: III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>200-752-1</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)
SARA 313
Not applicable

SARA 311/312 Hazard Categories
Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: Yes
Sudden Release of Pressure Hazard: No
Reactive Hazard: No

CWA (Clean Water Act)
Not applicable

Clean Air Act
Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

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

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Pentanol</td>
<td>X</td>
<td></td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade
No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
B3 Combustible liquid
D1B Toxic materials
D2B Toxic materials

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com
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 SDS