Section 1 - Product and Company Information

Product Name                      BENZYL ALCOHOL, ANHYDROUS, 99.8%
Product Number                    305197
Brand                              ALDRICH
Company                            Sigma-Aldrich
Street Address                     3050 Spruce Street
City, State, Zip, Country          SAINT LOUIS MO 63103 US
Technical Phone:                   314 771 5765
Emergency Phone:                   414 273 3850 Ext. 5996
Fax:                               800 325 5052

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENZYL ALCOHOL</td>
<td>100-51-6</td>
<td>No</td>
</tr>
</tbody>
</table>

Formula: C7H8O
Synonyms: Benzal alcohol * Benzenecarbinol *
         Benzenemethanol * Benzyol alcohol *
         Hydroxytoluene * alpha-Hydroxytoluene *
         Methanol, phenyl- * NCI-C06111 * Phenolcarbinol *
         Phenylcarbinol * Phenylmethanol *
         Phenylmethyl alcohol * alpha-Toluenol

RTECS Number: DN3150000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Harmful.
Harmful by inhalation and if swallowed. Irritating to skin.
Target organ(s): Central nervous system.

HMIS RATING
HEALTH: 2*
FLAMMABILITY: 1
REACTIVITY: 1

NFPA RATING
HEALTH: 2
FLAMMABILITY: 1
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.
INHALATION EXPOSURE
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
204.8 °F   96 °C   Method: closed cup

AUTOIGNITION TEMP
436 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Handle and store under nitrogen. Store in a cool dry place.

SPECIAL REQUIREMENTS
Handle and store under inert gas. Hygroscopic.

Section 8 - Exposure Controls / PPE
ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

EXPOSURE LIMITS

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poland</td>
<td>NDS</td>
<td></td>
<td>240 mg/m³</td>
</tr>
<tr>
<td>Poland</td>
<td>NDSCh</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Poland</td>
<td>NDSP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>108.14 AMU</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>BP/BP Range</td>
<td>90 – 93 °C</td>
<td>10 mmHg</td>
</tr>
<tr>
<td>MP/MP Range</td>
<td>-16 °C</td>
<td></td>
</tr>
<tr>
<td>Freezing Point</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>3.75 mmHg</td>
<td>77 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.7 g/l</td>
<td></td>
</tr>
<tr>
<td>Saturated Vapor Conc.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>SG/Density</td>
<td>1.044 g/cm³</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>5.5 ppm</td>
<td></td>
</tr>
<tr>
<td>Volatile%</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>VOC Content</td>
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<td></td>
</tr>
<tr>
<td>Water Content</td>
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<td></td>
</tr>
<tr>
<td>Solvent Content</td>
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<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
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<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.005 Pas</td>
<td>25 °C</td>
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<tr>
<td>Surface Tension</td>
<td>39 mN/m</td>
<td>20 °C</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>Log Kow: 1.1</td>
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</tr>
<tr>
<td>Decomposition Temp.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>204.8 °F 96 °C</td>
<td>Method: closed cup</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>436 °C</td>
<td></td>
</tr>
<tr>
<td>Refractive Index</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>Optical Rotation</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous Data</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>Solubility in Water: 33 mg/ml H2O, 20°C clear, colorless</td>
<td></td>
</tr>
<tr>
<td>Other Solvents: SOLUBLE IN ETHANOL, ETHER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Conditions of Instability: Hygroscopic.
Conditions to Avoid: A mixture of benzyl alcohol and 58% sulfuric acid decomposed violently when heated to 180°C. Benzyl alcohol containing 1.4% hydrogen bromide and 1.1% of an iron(II) salt polymerized exothermally when heated above 100°C.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)
Central nervous system.

SIGNS AND SYMPTOMS OF EXPOSURE
Can cause CNS depression.

TOXICITY DATA

Oral
Rat
1230 mg/kg
LD50

Intraperitoneal
Rat
400 MG/KG
LD50

Intravenous
Rat
53 MG/KG
LD50
Remarks: Lungs, Thorax, or Respiration: Dyspnea.

Intraarterial
Rat
441 MG/KG
LD50
Remarks: Lungs, Thorax, or Respiration: Chronic pulmonary edema. Lungs, Thorax, or Respiration: Dyspnea.

Oral
Mouse
1360 mg/kg
LD50

Intraperitoneal
Mouse
650 MG/KG
LD50

Intravenous
Mouse
324 MG/KG
LD50

Oral
Rabbit
1040 mg/kg
LD50

Skin
Rabbit
2000 mg/kg
LD50

Oral
Guinea pig
2500 mg/kg
LD50

Oral
Bird (wild)
100 mg/kg
LD50

IRRITATION DATA

Skin
Man
16 mg
48H
Remarks: Mild irritation effect

Skin
Rabbit
100 mg
24H
Remarks: Moderate irritation effect

Skin
Pig
100 %
Remarks: Moderate irritation effect

NTP CARCINOGEN LIST

Rating: No evidence.
Species: Mouse/rat
Route: Gavage

CHRONIC EXPOSURE - MUTAGEN

Species: Rat
Dose: 10 MMOL/L
Cell Type: liver  
Mutation test: DNA damage

Species: Mouse  
Dose: 250 MG/L (+S9)  
Cell Type: lymphocyte  
Mutation test: Mutation in microorganisms

Species: Hamster  
Dose: 4 UG/L  
Cell Type: ovary  
Mutation test: Cytogenetic analysis

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse  
Dose: 6 GM/KG  
Route of Application: Oral  
Exposure Time: (6-13D PREG)  
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 24 h  
Value: 55 mg/l

Test Type: LC50 Fish  
Species: Lepomis macrochirus (Bluegill)  
Time: 96 h  
Value: 10 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION  
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT  
Proper Shipping Name: Aviation Regulated Liquid, N.O.S.  
UN#: 3334  
Class: 9  
Packing Group: Packing Group III  
Hazard Label: Class 9  
PIH: Not PIH

IATA  
Proper Shipping Name: Aviation Regulated Liquid, N.O.S.  
IATA UN Number: 3334  
Hazard Class: 9

Section 15 - Regulatory Information
EU DIRECTIVES CLASSIFICATION
Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 20/22
Risk Statements: Harmful by inhalation and if swallowed.
S: 26
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Harmful.
Risk Statements: Harmful by inhalation and if swallowed.
Irritating to skin.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.
US Statements: Target organ(s): Central nervous system.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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