Section 1 - Product and Company Information

Product Name: Diethyl pyrocarbonate, approx. 97% HMR
Product Number: 05758
Brand: Sigma Chemical
Company: Sigma-Aldrich
Street Address: 3650 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5766
Fax: 314 771 5759
Emergency Phone: 414 273 3850 Ext. 5696

Section 2 - Composition/Information on Ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
<th>EC No</th>
<th>Annex I Index Number</th>
</tr>
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<tbody>
<tr>
<td>DIETHYL PYROCARBONATE</td>
<td>1609-47-8</td>
<td>No</td>
<td>216-542-8</td>
<td></td>
</tr>
</tbody>
</table>

Formula: C6H10O5
Synonyms: Baycolvin, Diacarbamic acid diethyl ester, DEPC, Diethyl dicarbamate, Diethylester kyseliny dulichta (Czech), Diethyl ester of pyrocarbonic acid, Diethyl oxyformate, Diethyl pyrocarbonate, Diethyl pyrocarbonic acid, Diethylpyrocarbonat (Czech), DKO, Ethyl pyrocarbonate, Oxyformic acid diethyl ester, Perel, Pyrocarbonate diethyl (French), Pyrocarbonic acid, diethyl ester, Pyrokokohasuurue, diethyl ether (German)

Section 3 - Hazards Identification

Emergancy Overview
Harmful. Harmful if swallowed. Irritating to eyes, respiratory system and skin.
Combustible. May develop pressure.

HMIS Rating
Health: 2
Flammability: 2
Reactivity: 1

NFPA Rating
Health: 2
Flammability: 2
Reactivity: 1

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.

Section 5 - Fire Fighting Measures

Flash Point: 156.2 °F
Autoignition Temp: 69 °C

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): Combustible liquid. 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
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors.

Section 7 - Handling and Storage

Handling
User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Always open containers slowly to allow any excess pressure to vent.

Storage
Suitable: Keep tightly closed. Keep away from heat and open flame. Handle and store under argon. Store at 2-8°C

Special Requirements
May develop pressure. Open carefully. Moisture sensitive.

Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Open only in a fume hood.

Personal Protective Equipment
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

Sigma Chemical - 05758
Sigma-Aldrich Corporation www.sigma-aldrich.com
Section 9 - Physical/Chemical Properties

Appearance
Physical State: Color
Clear liquid: Almost colorless

Molecular Weight: 162.14 AMU

pH: N/A
BP/BP Range: 160 - 163 °C
MP/MPL Range: N/A
Freezing Point: N/A
Vapor Pressure: N/A
Vapor Density: N/A
Saturated Vapor Conc.: N/A
SG/Density: 1.12 g/cm³
Bulk Density: N/A
Odor Threshold: N/A
Solubility: N/A
■ Volatility: N/A
■ Vap Content: N/A
■ Water Content: N/A
■ Evaporation Rate: N/A
■ Viscosity: N/A
■ Partition Coefficient: N/A
■ Decomposition Temp.: N/A
■ Flash Point °F: 158.2 °F
■ Flash Point °C: 69 °C
■ Explosion Limits: N/A
■ Flammability: N/A
■ Autoignition Temp: N/A
■ Refractive Index: 1.368
■ Solubility: N/A

N/A = not available

Section 10 - Stability and Reactivity

Stability
Stable
Decomposes slowly

Conditions of Instability
Unstable at room temperature. Moisture causes hydrolysis to ethanol and carbon dioxide; pressure may build up in the package.

Material to Avoid
Strong oxidizing agents, strong acids, strong bases, strong reducing agents, ammonia.

Hazardous Decomposition Products
Carbon monoxide, carbon dioxide.

Section 11 - Toxicological Information

Route of Exposure
- Skin Contact
  Causes skin irritation.
- Skin Absorption
  May be harmful if absorbed through the skin.
- Eye Contact
  Causes eye irritation.
- Inhalation
  May be harmful if inhaled.
- Ingestion
  Harmful if swallowed.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: LG9350000

Toxicity Data
- Oral - Rat: 850 mg/kg (LD50)
- Intraocular - Rat: 47 mg/kg (LD50)
- Oral - Mouse: 1558 mg/kg (LD50)
- Oral - Dog: 500 mg/kg (LD50)
- Oral - Cat: 100 mg/kg (LD50)
- Oral - Rabbit: 500 mg/kg (LD50)

Chronic Exposure - Carcinogen
Result: Diethyl pyrocarbonate may react with ammonia to form urethane. Animal studies indicate that urethane is a carcinogen

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned 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: Combustible liquid, n.o.s.
- UN#: 1993
- Class: COMBUSTIBLE LIQUID
- Packing Group: Packing Group III
- Hazard Label: None
- PI#: Not PI

IATA
- Non-Hazardous for Air Transport: Non-hazardous for air transport.
Section 15 - Regulatory Information

EU Additional Classification
Symbol of Danger: Xn
Indication of Danger
Harmful.
Risk Statements
R: 22 36/37/38
Harmful if swallowed. Imitating to eyes, respiratory system and skin.
Safety Statements
S: 26 36
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US Classification and Label Text
Indication of Danger
Harmful.
Risk Statements
Harmful if swallowed. Imitating to eyes, respiratory system and skin.
Safety Statements
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

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
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.