**CAUTIONARY RESPONSE INFORMATION**

**Common Synonyms**
Buyl phthalate
DBP
Phthalic acid, dibutyl ester
RC plasticizer DBP
Witcozer 300

**Physical State**
Oily liquid
Colorless
Odorless

- Sinks slowly in water.

**Fire**
Combustible.
Extinguish with dry chemical, foam, or carbon dioxide.

**Exposure**
**LIQUID**
No appreciable harm.

**Water Pollution**
Dangerous to aquatic life in high concentrations.
Fouling to shoreline.
May be dangerous if it enters water intakes.
Notify operators of nearby water intakes.

**Call fire department.**
Notify local health and pollution control agencies.
Call fire department. Not pertinent.
Notify local health and pollution control officials.
Notify operators of nearby water intakes.

**3. HEALTH HAZARDS**

3.1 Personal Protective Equipment: Eye protection.
3.2 Symptoms Following Exposure: Vapors from very hot material may irritate eyes and produce headache, drowsiness, and convulsions.
3.3 Treatment of Exposure: Remove to fresh air. Wash affected skin areas with water. Flush eyes with water.
3.4 TLV-TWA: 5 mg/m³
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 1; LD₅₀ = 5 to 15 g/kg (rat)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Birth defects in rats; polymen health in humans
3.10 Vapor (Gas) Irritant Characteristics: Not pertinent
3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 4,000 mg/m³
3.14 OSHA PEL-TWA: 5 mg/m³
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEG: Not listed

**2. CHEMICAL DESIGNATIONS**

2.1 CG Compatibility Group: 34; Eater
2.2 Formula: O=C=OCH₂CH₂COOCH₂CH₃
2.3 IMC/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 84-74-2
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51365

**4. FIRE HAZARDS**

4.1 Flash Point: 35°F/0.5°C
4.2 Flammable Limits in Air: 0.5%-2.5%
4.3 Fire Extinguishing Agents: Dry powder, carbon dioxide, foam
4.4 Fire Extinguishing Agents Not to Be Used: Water or foam may cause frothing.
4.5 Special Hazards of Combustion Products: Not pertinent
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: 757°F
4.8 Fire Extinguishing: Not pertinent
4.9 Rate of Combustion (Reactant to Product): Not pertinent
4.10 Combustion Molar Ratio (Reactant to Product): Not pertinent
4.11 Stoichiometric Air to Fuel Ratio: 92.8
4.12 Flame Temperature: Currently not available
4.13 Minimum Oxygen Concentration for Combustion (MOC): Currently not available

**5. CHEMICAL REACTIVITY**

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

**6. WATER POLLUTION**

6.1 Aquatic Toxicity:
- LC₅₀=94 hr/brinefish=97μg/l
- LC₅₀=53 ppm
- 96 hr Sediment Bioassay: 0.85mg/l, 96 h
- 96 h Fish Bioassay: 100 mg/l

6.2 Wastewater: LCO₂ = 5000 ppm
6.3 Biological Oxygen Demand (BOD): 0.43lb/lb, 5 days
6.4 Fish Chain Concentration Potential: Not pertinent
6.5 GESAMP Hazard Profile:
- Bioaccumulation: 0
- Damage to living resources: 2
- Human Oral hazard: 1
- Human Contact hazard: II
- Reduction of amenities: XX

**7. SHIPPING INFORMATION**

7.1 Grades of Purity: 99.6%
7.2 Storage Temperature: Currently not available
7.3 Inert Atmosphere: Currently not available
7.4 Venting: Currently not available
7.5 IMO Pollution Category: A
7.6 Ship Type: 2
7.7 Barge Hull Type: Currently not available

**8. HAZARD CLASSIFICATIONS**

8.1 49 CFR Category: Not listed
8.2 49 CFR Class: Not pertinent
8.3 49 CFR Package Group: Not listed
8.4 Marine Pollutant: Yes
8.5 NFPA Health Hazard Classification:
- Category
- Classification
- Health Hazard (Blue)...... 0
- Flammability (Red)......... 1
- Instability (Yellow)....... 0
8.6 EPA Reportable Quantity: 10 pounds
8.7 EPA Pollution Category: A
8.8 RQWA Waste Number: 1069
8.9 EPA FWPCA List: Not listed

**9. PHYSICAL & CHEMICAL PROPERTIES**

9.1 Physical State at 15°C and 1 atm: Liquid
9.2 Molecular Weight: 278.35
9.3 Boiling Point at 1 atm: 639°F = 335°C = 608°F
9.4 Freezing Point: –31°F = –35°C = 238°F
9.5 Critical Temperature: 932.0°F = 500°C = 773.2°K
9.6 Critical Pressure: 250 psia = 17 atm = 1.7 MN/m²
9.7 Specific Gravity: 1.049 at 20°C (liquid)
9.8 Liquid Surface Tension: 34 dynes/cm = 0.034 N/m at 20°C
9.9 Liquid Water Interfacial Tension: 27 dynes/cm = 0.027 N/m at 22.7°C
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
9.12 Latent Heat of Vaporization: Not pertinent
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solubility: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

**9.19 JUNE 1999**
## 9.20 Saturated Liquid Density

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
<th>Temperature (degrees F)</th>
<th>British thermal unit per hour-square foot-F</th>
<th>Temperature (degrees F)</th>
<th>Centipoise</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>66.300</td>
<td>32</td>
<td>0.430</td>
<td>45</td>
<td>0.956</td>
<td>55</td>
<td>24.790</td>
</tr>
<tr>
<td>50</td>
<td>66.020</td>
<td>34</td>
<td>0.430</td>
<td>50</td>
<td>0.954</td>
<td>60</td>
<td>22.770</td>
</tr>
<tr>
<td>60</td>
<td>65.730</td>
<td>36</td>
<td>0.430</td>
<td>55</td>
<td>0.952</td>
<td>65</td>
<td>20.950</td>
</tr>
<tr>
<td>70</td>
<td>65.440</td>
<td>38</td>
<td>0.430</td>
<td>60</td>
<td>0.949</td>
<td>70</td>
<td>19.310</td>
</tr>
<tr>
<td>80</td>
<td>65.139</td>
<td>40</td>
<td>0.430</td>
<td>65</td>
<td>0.947</td>
<td>75</td>
<td>17.820</td>
</tr>
<tr>
<td>90</td>
<td>64.849</td>
<td>42</td>
<td>0.430</td>
<td>70</td>
<td>0.945</td>
<td>80</td>
<td>16.470</td>
</tr>
<tr>
<td>100</td>
<td>64.559</td>
<td>44</td>
<td>0.430</td>
<td>75</td>
<td>0.943</td>
<td>85</td>
<td>15.250</td>
</tr>
<tr>
<td>110</td>
<td>64.270</td>
<td>46</td>
<td>0.430</td>
<td>80</td>
<td>0.941</td>
<td>90</td>
<td>14.140</td>
</tr>
<tr>
<td>120</td>
<td>63.980</td>
<td>48</td>
<td>0.430</td>
<td>85</td>
<td>0.939</td>
<td>95</td>
<td>13.120</td>
</tr>
<tr>
<td>130</td>
<td>63.690</td>
<td>50</td>
<td>0.430</td>
<td>90</td>
<td>0.937</td>
<td>100</td>
<td>12.200</td>
</tr>
<tr>
<td>140</td>
<td>63.400</td>
<td>52</td>
<td>0.430</td>
<td>95</td>
<td>0.934</td>
<td>105</td>
<td>11.350</td>
</tr>
<tr>
<td>150</td>
<td>63.100</td>
<td>54</td>
<td>0.430</td>
<td>100</td>
<td>0.932</td>
<td>110</td>
<td>10.580</td>
</tr>
<tr>
<td>160</td>
<td>62.810</td>
<td>56</td>
<td>0.430</td>
<td>105</td>
<td>0.930</td>
<td>115</td>
<td>9.870</td>
</tr>
<tr>
<td>170</td>
<td>62.520</td>
<td>58</td>
<td>0.430</td>
<td>110</td>
<td>0.928</td>
<td>120</td>
<td>9.220</td>
</tr>
<tr>
<td>180</td>
<td>62.230</td>
<td>60</td>
<td>0.430</td>
<td>115</td>
<td>0.926</td>
<td></td>
<td></td>
</tr>
<tr>
<td>190</td>
<td>61.940</td>
<td>62</td>
<td>0.430</td>
<td>120</td>
<td>0.924</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>61.650</td>
<td>64</td>
<td>0.430</td>
<td>125</td>
<td>0.921</td>
<td></td>
<td></td>
</tr>
<tr>
<td>210</td>
<td>61.360</td>
<td>66</td>
<td>0.430</td>
<td>130</td>
<td>0.919</td>
<td></td>
<td></td>
</tr>
<tr>
<td>220</td>
<td>61.070</td>
<td>68</td>
<td>0.430</td>
<td>135</td>
<td>0.917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>230</td>
<td>60.780</td>
<td>70</td>
<td>0.430</td>
<td>140</td>
<td>0.915</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 9.21 Liquid Heat Capacity

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per square inch</th>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>220</td>
<td>0.001</td>
<td>220</td>
</tr>
<tr>
<td>N</td>
<td>230</td>
<td>0.001</td>
<td>230</td>
</tr>
<tr>
<td>S</td>
<td>240</td>
<td>0.002</td>
<td>240</td>
</tr>
<tr>
<td>O</td>
<td>250</td>
<td>0.003</td>
<td>250</td>
</tr>
<tr>
<td>U</td>
<td>260</td>
<td>0.004</td>
<td>260</td>
</tr>
<tr>
<td>B</td>
<td>270</td>
<td>0.006</td>
<td>270</td>
</tr>
<tr>
<td>L</td>
<td>280</td>
<td>0.009</td>
<td>280</td>
</tr>
<tr>
<td>E</td>
<td>290</td>
<td>0.013</td>
<td>290</td>
</tr>
<tr>
<td>300</td>
<td>310</td>
<td>0.018</td>
<td>310</td>
</tr>
<tr>
<td>320</td>
<td>330</td>
<td>0.025</td>
<td>330</td>
</tr>
<tr>
<td>340</td>
<td>350</td>
<td>0.048</td>
<td>350</td>
</tr>
<tr>
<td>360</td>
<td>0.066</td>
<td>360</td>
<td>0.00158</td>
</tr>
<tr>
<td>380</td>
<td>0.089</td>
<td>380</td>
<td>0.00213</td>
</tr>
<tr>
<td>400</td>
<td>0.119</td>
<td>400</td>
<td>0.00264</td>
</tr>
</tbody>
</table>

## 9.22 Liquid Thermal Conductivity

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Centipoise</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>24.790</td>
</tr>
<tr>
<td>60</td>
<td>22.770</td>
</tr>
<tr>
<td>65</td>
<td>20.950</td>
</tr>
<tr>
<td>70</td>
<td>19.310</td>
</tr>
<tr>
<td>75</td>
<td>17.820</td>
</tr>
<tr>
<td>80</td>
<td>16.470</td>
</tr>
<tr>
<td>85</td>
<td>15.250</td>
</tr>
<tr>
<td>90</td>
<td>14.140</td>
</tr>
<tr>
<td>95</td>
<td>13.120</td>
</tr>
<tr>
<td>100</td>
<td>12.200</td>
</tr>
<tr>
<td>105</td>
<td>11.350</td>
</tr>
<tr>
<td>110</td>
<td>10.580</td>
</tr>
<tr>
<td>115</td>
<td>9.870</td>
</tr>
<tr>
<td>120</td>
<td>9.220</td>
</tr>
</tbody>
</table>

## 9.23 Liquid Viscosity

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.21</td>
<td></td>
</tr>
</tbody>
</table>

## 9.24 Solubility in Water

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per 100 pounds of water</th>
<th>Temperature (degrees F)</th>
<th>Temperature (degrees F)</th>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>220</td>
<td>0.001</td>
<td>220</td>
<td>0.00003</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>230</td>
<td>0.001</td>
<td>230</td>
<td>0.00005</td>
<td>O</td>
</tr>
<tr>
<td>S</td>
<td>240</td>
<td>0.002</td>
<td>240</td>
<td>0.00008</td>
<td>T</td>
</tr>
<tr>
<td>O</td>
<td>250</td>
<td>0.003</td>
<td>250</td>
<td>0.00011</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>260</td>
<td>0.004</td>
<td>260</td>
<td>0.00016</td>
<td>P</td>
</tr>
<tr>
<td>B</td>
<td>270</td>
<td>0.006</td>
<td>270</td>
<td>0.00023</td>
<td>E</td>
</tr>
<tr>
<td>L</td>
<td>280</td>
<td>0.009</td>
<td>280</td>
<td>0.00032</td>
<td>R</td>
</tr>
<tr>
<td>E</td>
<td>290</td>
<td>0.013</td>
<td>290</td>
<td>0.00045</td>
<td>T</td>
</tr>
<tr>
<td>300</td>
<td>310</td>
<td>0.018</td>
<td>310</td>
<td>0.00062</td>
<td></td>
</tr>
<tr>
<td>320</td>
<td>330</td>
<td>0.025</td>
<td>330</td>
<td>0.00086</td>
<td></td>
</tr>
<tr>
<td>340</td>
<td>350</td>
<td>0.048</td>
<td>350</td>
<td>0.00117</td>
<td></td>
</tr>
<tr>
<td>360</td>
<td>0.066</td>
<td>360</td>
<td>0.00158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>380</td>
<td>0.089</td>
<td>380</td>
<td>0.00213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>0.119</td>
<td>400</td>
<td>0.00264</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 9.25 Saturated Vapor Pressure

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per square inch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 9.26 Saturated Vapor Density

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 9.27 Ideal Gas Heat Capacity

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>