1. PRODUCT AND COMPANY IDENTIFICATION

   Product name : Dibutyl phthalate
   Product Number : 524980
   Brand : Aldrich
   Company : Sigma-Aldrich
             3050 Spruce Street
             SAINT LOUIS MO  63103
             USA
   Telephone : +18003255832
   Fax : +18003255052
   Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

   Emergency Overview

   OSHA Hazards
   Teratogen

   Target Organs
   Eyes, Kidney, Liver, Lungs, Testes., Central nervous system

   GHS Label elements, including precautionary statements

   Pictogram

   Signal word Danger

   Hazard statement(s)
   H360 May damage fertility or the unborn child.
   H410 Very toxic to aquatic life with long lasting effects.

   Precautionary statement(s)
   P201 Obtain special instructions before use.
   P273 Avoid release to the environment.
   P308 + P313 IF exposed or concerned: Get medical advice/ attention.
   P501 Dispose of contents/ container to an approved waste disposal plant.

   HMIS Classification
   Health hazard: 1
   Chronic Health Hazard: *
   Flammability: 1
   Physical hazards: 0

   NFPA Rating
   Health hazard: 2
   Fire: 1
   Reactivity Hazard: 0

   Potential Health Effects

   Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
   Skin May be harmful if absorbed through skin. May cause skin irritation.
   Eyes May cause eye irritation.
   Ingestion May be harmful if swallowed.
3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: n-Butyl phthalate
Phthalic acid dibutyl ester
DBP

Formula: C_{16}H_{22}O_{4}
Molecular Weight: 278.34 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibutyl phthalate</td>
<td>84-74-2</td>
<td>201-557-4</td>
<td>607-318-00-4-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Flush eyes with water as a precaution.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid inhalation of vapour or mist.
Normal measures for preventive fire protection.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibutyl phthalate</td>
<td>84-74-2</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Eye & Upper Respiratory Tract irritation Testicular damage

| TWA | 5 mg/m³ | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| TWA | 5 mg/m³ | 1997-08-04 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |

Personal protective equipment

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

- Form: liquid, clear
- Colour: colourless

**Safety data**

- pH: no data available
- Melting point: -35 °C (-31 °F) - lit.
- Boiling point: 340 °C (644 °F) - lit.
- Flash point: 171.0 °C (339.8 °F) - closed cup
- Ignition temperature: 402 °C (756 °F)
- Lower explosion limit: 0.47 % (V)
- Upper explosion limit: 
- Vapour pressure: 1.3 hPa (1.0 mmHg) at 147.0 °C (296.6 °F)
- Density: 1.043 g/cm³ at 25 °C (77 °F)
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents, Nitrates, Bases, acids, Chlorine

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 8,000 mg/kg
LC50 Inhalation - rat - 4,250 mg/m3
LD50 Dermal - rabbit - > 20,860 mg/kg

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Presumed human reproductive toxicant

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available
Aspiration hazard
no data available

Potential health effects

Inhalation  May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion   May be harmful if swallowed.
Skin       May be harmful if absorbed through skin. May cause skin irritation.
Eyes       May cause eye irritation.

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

Additional Information
RTECS: TI0875000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish   LC50 - Pimephales promelas (fathead minnow) - 0.85 mg/l  - 96.0 h
                  NOEC - Pimephales promelas (fathead minnow) - 0.32 mg/l  - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.   LC50 - Daphnia magna (Water flea) - 3.7 mg/l  - 48 h

Persistence and degradability
no data available

Bioaccumulative potential

Bioaccumulation   Pimephales promelas (fathead minnow) - 11 d
                  Bioconcentration factor (BCF): 2,165

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 3082   Class: 9  Packing group: III
Proper shipping name: Environmentally hazardous substances, liquid, n.o.s. (Dibutyl phthalate)
Reportable Quantity (RQ): 10 lbs
Marine pollutant: Marine pollutant
Poison Inhalation Hazard: No
IMDG
UN-Number: 3082  Class: 9  Packing group: III  EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl phthalate)
Marine pollutant: Marine pollutant

IATA
UN-Number: 3082  Class: 9  Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

OSHA Hazards
Teratogen

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

<table>
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SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

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16. OTHER INFORMATION

Further information
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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 Co., 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.