Section 1 - Chemical Product and Company Identification

MSDS Name: Benzene-isobutanol reagent
Catalog Numbers: LC11665
Synonyms:
Company Identification: LabChem, Inc.
200 William Pitt Way
Pittsburgh, PA 15238
Company Phone Number: (412) 826-5230
Emergency Phone Number: (800) 424-9300
CHEMTREC Phone Number: (800) 424-9300

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>71-43-2</td>
<td>Benzene</td>
<td>50</td>
</tr>
<tr>
<td>78-83-1</td>
<td>Isobutyl alcohol</td>
<td>50</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Colorless

Warning! Cancer hazard. May cause irritation with possible injury by all exposure routes.

Flash Point: -11°C.

Target Organs: none known.

Potential Health Effects

Eye:
May cause moderate eye irritation.

Skin:
May cause mild skin irritation.

Ingestion:
May cause headache, nausea, fatigue, and dizziness.
Inhalation:
May cause burning sensation to mucous membranes, eyes, skin, nasal passages.

Chronic:
May cause dermatitis and conjunctivitis. Prolonged skin exposure may cause dermatitis with drying, cracking skin. Prolonged inhalation may affect central nervous system, cause anemia, leukemia. Repeated ingestion may affect kidneys, gastrointestinal tract. Prolonged inhalation may cause auditory nerve damage, vertigo.

Section 4 - First Aid Measures

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once.

Skin:
Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Remove contaminated clothing and shoes.

Ingestion:
Get medical aid at once. If vomiting occurs, keep head lower than hips to prevent aspiration. If victim is conscious, perform gastric lavage or emesis followed by a saline cathartic.

Inhalation:
Give artificial respiration if necessary. Get medical aid. Keep victim warm, at rest. Move victim to fresh air.

Notes to Physician:
Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information:
Vapors can travel to a source of ignition and flash back. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Move container if possible, avoid breathing vapors or dust. Dangerous fire/negligible explosion hazard when exposed to heat or flame.

Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Autoignition Temperature:
498°C (928.40°F)

Flash Point:
-11°C (12.20°F)

NFPA Rating:
CAS # 71-43-2 health-2; flammability-3; reactivity-0
CAS # 78-83-1 health-1; flammability-3; reactivity-0

Explosion Limits:
Lower: 1.2 Upper: 7.8

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spills with absorbent (vermiculite, sand, fuller's earth) and place in plastic bags for later disposal.

Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Avoid breathing dust, vapor, mist, or gas.

Storage:
Store capped at room temperature. Protect from heat and incompatibles.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Provide local exhaust or general dilution ventilation.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>0.5 ppm TWA; 2.5 ppm STEL; skin - potential for cutaneous absorption</td>
<td>0.1 ppm TWA; NIOSH Potential Occupational Carcinogen - see Appendix A</td>
<td>10 ppm TWA (apply only to exempt industry segments); C 25 ppm; 1 ppm TWA; 5 ppm STEL; 0.5 ppm TWA action limit; Cancer hazard; Flammable (see 2; 100 ppm TWA; 300 mg/m3 TWA;</td>
</tr>
<tr>
<td>Isobutyl alcohol</td>
<td>50 ppm TWA</td>
<td>50 ppm TWA; 150 mg/m3 TWA</td>
<td></td>
</tr>
</tbody>
</table>

OSHA Vacated PELs
Benzen: 10 ppm TWA (unless specified in 1910.1028)
Isobutyl alcohol: 50 ppm TWA; 150 mg/m3 TWA

Personal Protective Equipment

Eyes:
Do not wear contact lenses when working with chemicals. An eye wash fountain should be available in the immediate work area. Wear splash-proof safety goggles.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:
Firefighting-- any self-contained breathing apparatus with full facepiece operated in pressure-demand mode. Use under fume hood.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid
Color: Colorless
Odor: Aromatic odor - solvent odor
Material Safety Data Sheet
Benzene-isobutanol reagent

pH: No information found.
Vapor Pressure: No information found.
Vapor Density: No information found.
Evaporation Rate: No information found.
Viscosity: No information found.
Boiling Point: No information found.
Freezing/Melting Point: No information found.
Decomposition Temperature: No information found.
Solubility in water: Slightly soluble.
Specific Gravity/Density: No information found.
Molecular Formula: No information found.
Molecular Weight: No information found.

Section 10 - Stability and Reactivity

Chemical Stability:
Stable under normal temperatures and pressures.

Conditions to Avoid:
Ignition sources, heat.

Incompatibilities with Other Materials
None reported.

Hazardous Decomposition Products
Oxides of carbon.

Hazardous Polymerization
Has not been reported

Section 11 - Toxicological Information

RTECS:
CAS# 71-43-2: CY1400000.
CAS# 78-83-1: NP9625000.

LD50/LC50:
CAS# 71-43-2:
Inhalation, mouse: LC50 =9980 ppm
Inhalation, rat: LC50 =10000 ppm/7H
Oral, mouse: LD50 = 4700 mg/kg
Oral, rat: LD50 = 930 mg/kg
Skin, rabbit: LD50 = >9400 mg/kg.
CAS# 78-83-1:
Oral, rat: LD50 = 2460 mg/kg
Skin, rabbit: LD50 = 3400 mg/kg.

Carcinogenicity:
CAS# 71-43-2
ACGIH: A1-confirmed human carcinogen
California: carcinogen; initial date 2/27/87
NIOSH: occupational carcinogen
Material Safety Data Sheet
Benzene-isobutanol reagent

NTP: Known carcinogen
OSHA: Select carcinogen
IARC: Group 1 carcinogen
CAS# 78-83-1: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

Epidemiology:
Benzene is a known carcinogen.

Teratogenicity:
See RTECS.

Reproductive:
See RTECS.

Mutagenicity
See RTECS.

Neurotoxicity

Section 12 - Ecological Information
No information found.

Section 13 - Disposal Considerations
Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Flammable liquid, n.o.s.
(Benzene, isobutanol)

Hazard Class: 3
UN Number: UN1993
Packing Group: PG II

Section 15 - Regulatory Information

US Federal

TSCA
CAS# 71-43-2 is listed on the TSCA Inventory.
CAS# 78-83-1 is listed on the TSCA Inventory.

SARA Reportable Quantities (RQ)
CAS# 71-43-2: final RQ = 10 pounds (4.54 kg); receives an adjustable RQ of 10 pounds based on
CAS# 78-83-1: final RQ = 5000 pounds (2270 kg)

CERCLA/SARA Section 313
This material contains Benzene (CAS# 71-43-2, 50%), which is subject to the reporting requirements of Section 313
of SARA Title III and 40 CFR Part 373.
OSHA - Highly Hazardous
None of the components are on this list.

US State

State Right to Know
Benzene can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Isobutyl alcohol can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California Regulations
WARNING: This product contains Benzene, a chemical known to the state of California to cause birth defects or other reproductive harm.
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European/International Regulations

Canadian DSL/NDSL
CAS# 71-43-2 is listed on Canada's DSL List.
CAS# 78-83-1 is listed on Canada's DSL List.

Canada Ingredient Disclosure List
CAS# 71-43-2 is listed on Canada's Ingredient Disclosure List.
CAS# 78-83-1 is listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: November 26, 1998
Revision Date: August 22, 2006

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