SECTION 1- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: Benzene

Catalog Numbers:
B012

Synonyms:
Benzol, coal naphtha, cyclohexatriene, phenyl hydride, pyrobenzol.

Company Information:
LEONID CHEMICALS Pvt Ltd,

62/A-2, 1st Stage,

Yeshvanthpur Industrial Suburb,

Asoka puram School Road,

Bangalore -22, Karnataka, INDIA

Ph- +91-80-23378354

Fax: +918023378354/23377126

SECTION 2- COMPOSITION, INFORMATION ON INGREDIENTS

CAS #	: 71-43-2
Chemical Name	: Benzene
%	: Min 99% (LR), Min 99.7 (AR)
EINECS#	: 200-753-7
Hazard Symbols	: Unlisted
Risk Phrases	: Unlisted

SECTION 3- HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
No information available.

Potential Health Effects Eye:
Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury.

Skin:
Causes skin irritation. May be absorbed through the skin in harmful amounts.
Aspiration hazard. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Causes throat constriction, vomiting, convulsions, and shock. May cause effects similar to those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Inhalation:

May cause respiratory tract irritation. May cause adverse central nervous system effects

including headache, convulsions, and possible death.

Chronic:

Possible cancer hazard based on tests with laboratory animals. Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure may cause adverse reproductive effects. May cause bone marrow abnormalities with damage to blood forming tissues.

SECTION 4 -FIRST AID MEASURES

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

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

Ingestion:
Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Possible aspiration hazard. Get medical aid immediately.

Inhalation:
Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:
No information available.

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Vapors can travel to a source of ignition and flash back. Extremely flammable. Material will readily ignite at room temperature. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water.

Extinguishing Media:
Use foam, dry chemical, or carbon dioxide. Water may spread fire.

SECTION 6 -ACCIDENTAL RELEASE MEASURES

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Avoid runoff into storm sewers and ditches which lead to waterways. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section).

Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust.

SECTION 7 - HANDLING AND STORAGE

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not get on skin or in eyes. Do not ingest or inhale.

Storage:

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use substance with extreme caution and designate regulated areas for use.

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard En166.

Skin:

Wear impervious gloves.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

SECTION 9 -PHYSICAL AND CHEMICAL PROPERTIES

Physical State	: Liquid
Color	: Colorless.
Odor	: Sweet, aromatic.
pH	: No information available.
Vapor Pressure	: 100 mm Hg
Viscosity	: 0.647mPa at 20°C
Boiling Point	: 176°F
Freezing/Melting Point	: 42°F
Autoignition Temperature	: 928 °F (497.78 °C)
Flash Point	: 12 °F (-11.11 °C)
Explosion Limits, lower	: 1.3
Explosion Limits, upper	: 7.1

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Decomposition Temperature	: No information available.
Solubility in water	: 0.18g/100g water at 25°C.
Specific Gravity/Density	: 0.88
Molecular Formula	: C_6H_6
Molecular Weight	: 78.11

SECTION 10 -STABILITY AND REACTIVITY

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid:
Incompatible materials, ignition sources, excess heat.

Incompatibilities with Other Materials:
Bromine pentafluoride, bromine trifluoride, chlorine, chlorine trifluoride, chromic anhydride, diborane, iodine heptafluoride, nitric acid, nitryl perchlorate, oxidizers, oxygen, ozone, perchlorates, permanganates + sulfuric acid, potassium peroxide, silver perchlorate, sodium peroxide.

Hazardous Decomposition Products:
Irritating and toxic fumes and gases.

Hazardous Polymerization:
Has not been reported.

SECTION 11 -TOXICOLOGICAL INFORMATION

RTECS#:
CAS# 71-43-2: Cy1400000

LD50/LC50:
CAS# 71-43-2: Dermal, guinea pig: LD50 = >9400 uL/kg; Draize test, rabbit, eye: 88 mg Moderate; Draize test, rabbit, eye: 2 mg/24H Severe; Draize test, rabbit, skin: 20 mg/24H Moderate; Inhalation, mouse: LC50 = 9980 ppm; Inhalation, mouse: LC50 = 24 mL/kg/2H; Inhalation, rat: LC50 = 10000 ppm/7H; Inhalation, rat: LC50 = 34 mL/kg/2H; Inhalation, rat: LC50 = 6.5 mL/kg/4H; Oral, mouse: LD50 = 4700 mg/kg; Oral, rat: LD50 = 930 mg/kg; Oral, rat: LD50 = 1 mL/kg; Oral, rat: LD50 = 1800 mg/kg; Skin, rabbit: LD50 = >9400 uL/kg.

Carcinogenicity:
Benzene - ACGIH:

A1 - Confirmed Human Carcinogen

California: Carcinogen; initial date 2/27/87

NIOSH: potential occupational carcinogen

NTP: known carcinogen

OSHA: Select carcinogen IARC: Group 1 carcinogen

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Other:
See actual entry in RTECS for complete information.

SECTION 12 -ECOLOGICAL INFORMATION

Ecotoxicity:
Minnow (distilled water) lethal, 5 ppm/6H. Sunfish (tap water) TLM=20 ppm/24H. Striped bass TLm96=100-10 ppm.

SECTION 13 -DISPOSAL CONSIDERATIONS

Products which are considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local waste regulator for advice. Empty containers must be decontaminated before returning for recycling.

SECTION 14 -TRANSPORT INFORMATION

IATA
Shipping Name : BENZENE
Hazard Class : 3
UN Number : 1114
Packing Group : II
IMO
Shipping Name : BENZENE
Hazard Class : 3
UN Number : 1114
Packing Group : II
RID/ADR
Shipping Name : BENZENE
Hazard Class : 3
UN Number : 1114
Packing group : II

SECTION 15 -REGULATORY INFORMATION

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:
No information available.
Risk Phrases:
No information available.
Safety Phrases:
No information available. **WGK** (Water Danger/Protection)

CAS# 71-43-2: 3

United Kingdom Occupational Exposure Limits

No information available.

United Kingdom Maximum Exposure Limits

CAS# 71-43-2: MEL-United Kingdom, TWA 3 ppm TWA Canada CAS# 71-43-2 is listed on Canada's DSL List. CAS# 71-43-2 is listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 71-43-2:
OEL-AUSTRALIA: TWA 5 ppm (16 mg/m^3); Carcinogen
OEL-BELGIUM: TWA 10 ppm (32 mg/m^3); Carcinogen JAN9
OEL-CZECHOSLOVAKIA: TWA 10 mg/m^3; STEL 20 mg/m^3
OEL-DENMARK: TWA 5 ppm (16 mg/m^3); Skin; Carcinogen
OEL-FINLAND:TWA 5 ppm (15 mg/m^3);STEL 10 ppm (30 mg/m^3);Skin; CAR
OEL-FRANCE: TWA 5 ppm (16 mg/m^3); Carcinogen
OEL-GERMANY; Skin; Carcinogen
OEL-HUNGARY: STEL 5 mg/m^3; Skin; Carcinogen
OEL-INDIA: TWA 10 ppm (30 mg/m^3); Carcinogen
OEL-JAPAN: TWA 10 ppm (32 mg/m^3); STEL 25 ppm (80 mg/m^3); CAR
OEL-THE NETHERLANDS: TWA 10 ppm (30 mg/m^3); Skin
OEL-THE PHILIPPINES: TWA 25 ppm (80 mg/m^3); Skin
OEL-POLAND: TWA 30 mg/m^3; Skin
OEL-RUSSIA:TWA 10 ppm (5 mg/m^3);STEL 25 ppm (15 mg/m^3);Skin; CAR
OEL-SWEDEN:TWA 1 ppm (3 mg/m^3);STEL 5 ppm (16 mg/m^3);Skin; CAR
OEL-SWITZERLAND: TWA 5 ppm (16 mg/m^3); Skin; Carcinogen
OEL-THAILAND: TWA 10 ppm (30 mg/m^3); STEL 25 ppm (7 mg/m^3)
OEL-TURKEY: TWA 20 ppm (64 mg/m^3); Skin
OEL-UNITED KINGDOM: TWA 10 ppm (30 mg/m^3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

US FEDERAL TSCA

CAS# 71-43-2 is listed on the TSCA inventory.

SECTION 16 - ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Leonid Chemicals Pvt. Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising, even if Leonid Chemicals Pvt. Ltd. has been advised of the possibility of such damages.

Specification manual - Benzene

C_6H_6 **MW: 78.11**

CAS No : **71-43-2**
Product : **Benzene LR Grade**
Description : **A Clear colourless liquid with characteristic odour**
Cat No : **B012**
Prepared Date : **07.03.2005**
Approved Date : **07.03.2005**

REVISION HISTORY				
Issue/Rev	**Description of Change**		**Author**	**Effective Date**
01/00	*Initial Release*		*S. Paul Joshua*	*07.03.2005*
02/00	*Reviewed no changes*		*S. Paul Joshua*	*01.04.2011*
Next Review Due :	*02.04.2015*			
To be reviewed by :	Head-QC/QA			

Sl. No.	Tests	Specification
		LR
1	Assay (GC)	Min 99.0%
2	Water	0.1%
3	Boiling range	79 - 81°C (95%)

Approved By: S.Paul Joshua, Head Quality Control and Quality Assurance

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