SDS 9660 Benzene

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1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Company Name **ECP Limited**

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Product	Benzene Anhydrous				**Code**	9660
CAS#	**HSNO#**	**UN #**	**DG Class/es**	**Packing group #**	**Tracking?**	**Handlers Certificate?**
71-43-2	HSR001038	1114	3	II	No	No

Recommended use: Laboratory Investigations

2. Hazards identification

2.1 GHS Classification

2.2 GHS Label elements, including precautionary statements

Restricted to professional users.

2.3 Other hazards

None

3. Composition/information on ingredients

Substance/Mixture: Substance

4. First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

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. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Nausea, Dizziness, Headache, narcosis, Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation and/or giddiness, depression, drowsiness, or fatigue. The victim may experience tightness in the chest, breathlessness, and loss of consciousness. Tremors, convulsions, and death due to respiratory paralysis or circulatory collapse can occur in a few minutes to several hours following severe exposures. Aspiration of small amounts of liquid immediately causes pulmonary edema and hemorrhage of pulmonary tissue. Direct skin contact may cause erythema. Repeated or prolonged skin contact may result in drying, scaling dermatitis, or development of secondary skin infections. The chief target organ is the hematopoietic system. Bleeding from the nose, gums, or mucous membranes and the development of purpuric spots, pancytopenia, leukopenia, thrombocytopenia,

aplastic anemia, and leukemia may occur as the condition progresses. The bone marrow may appear normal, aplastic or hyperplastic, and may not correlate with peripheral bloodforming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased. Blood disorders.
4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. Firefighting measures
5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from the substance or mixture
No data available
5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
5.4 Further information
Use water spray to cool unopened containers.

6. Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
6.2 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.
6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal.

7. Handling and storage
7.1 Precautions for safe handling
Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.
7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. 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.
7.3 Specific end use(s)
No data available

8. Exposure controls/personal protection
8.1 Control parameters
Occupational Exposure Limits Table
8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment
Eye/face protection
Face shield and safety glasses

Use equipment for eye protection tested and approved under appropriate government standards.
Skin 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.
Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Body Protection
Complete suit protecting against chemicals. Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination or 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.

9. Physical and chemical properties
9.1 Information on basic physical and chemical properties
a) Appearance
Form: liquid
Colour: clear, colourless
b) Odour
No data available
c) Odour Threshold
No data available
d) pH
No data available
e) Melting point/freezing point
Melting point/range: 5.5 °C - lit.
f) Initial boiling point and boiling range 80 °C - lit.
g) Flash point
-11.0 °C - closed cup
h) Evaporation rate
No data available
i) Flammability (solid, gas)
No data available
j) Upper/lower flammability or explosive limits
Upper explosion limit: 8 %(V)
Lower explosion limit: 1.3 %(V)
k) Vapour pressure
221.3 hPa at 37.7 °C 99.5 hPa at 20.0 °C
l) Vapour density
No data available

m) Relative density
0.874 g/cm3 at 25 °C
n) Water solubility
ca.1.88 g/l at 23.5 °C - soluble
o) Partition coefficient: n-octanol/water log
Pow: 2.13 at 25 °C
p) Auto-ignition temperature
562.0 °C
q) Decomposition temperature
No data available
r) Viscosity
No data available

10. Stability and reactivity
10.1 Reactivity
No data available
10.2 Chemical stability
No data available
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
Heat, flames and sparks.
10.5 Incompatible materials
Acids, Bases, Halogens, Strong oxidizing agents, Metallic salts
10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

11. Toxicological information
11.1 Information on toxicological effects
Acute toxicity
LD50 Oral - Rat - male - > 5,960 mg/kg
LC50 Inhalation - Rat - female - 4 h - 43.7 mg/l
LD50 Dermal - Rabbit - 8,263 mg/kg
Skin corrosion/irritation
Skin - Rabbit - Skin irritation - 4 h - OECD Test Guideline 404
Serious eye damage/eye irritation
Eyes - Rabbit - Eye irritation
Respiratory or skin sensitisation
Maximisation Test - Guinea pig - Does not cause skin sensitisation.
Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects. In vivo tests showed mutagenic effects
Genotoxicity in vitro - Chinese hamster lung cells - with and without metabolic activation - positive
Genotoxicity in vivo - Mouse - male - Oral - positive
Carcinogenicity
Carcinogenicity - Human - male - Inhalation
Tumorigenic: Carcinogenic by RTECS criteria. Leukaemia Blood: Thrombocytopenia.
Carcinogenicity - Rat - Oral
Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Tumors. Leukaemia
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen. IARC: 1 - Group 1: Carcinogenic to humans
Reproductive toxicity
Reproductive toxicity - Mouse - Intraperitoneal
Effects on Fertility: Pre-implantation mortality (e.g., reduction in numbe corpora lutea).
Effects on Embryo or Fetus: Fetal death.
Developmental Toxicity - Rat - Inhalation
Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord).
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).
Developmental Toxicity - Mouse - Inhalation
Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material).
Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
May be fatal if swallowed and enters airways.
Potential health effects
Inhalation
Toxic if inhaled. Causes respiratory tract irritation.
Ingestion
Aspiration hazard if swallowed - can enter lungs and cause damage.
Skin
Toxic if absorbed through skin. Causes skin irritation.
Eyes
Causes serious eye irritation.
Signs and Symptoms of Exposure
Nausea, Dizziness, Headache, narcosis, Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation and/or giddiness, depression, drowsiness, or fatigue. The victim may experience tightness in the chest, breathlessness, and loss of consciousness. Tremors, convulsions, and death due to respiratory paralysis or circulatory collapse can occur in a few minutes to several hours following severe exposures. Aspiration of small amounts of liquid immediately causes pulmonary edema and hemorrhage of pulmonary tissue. Direct skin contact may cause erythema. Repeated or prolonged skin contact may result in drying, scaling dermatitis, or development of secondary skin infections. The chief target organ is the hematopoietic system. Bleeding from the nose, gums, or mucous membranes and the development of purpuric spots, pancytopenia, leukopenia, thrombocytopenia, aplastic anemia, and leukemia may occur as the condition progresses. The bone marrow may appear normal, aplastic or hyperplastic, and may not correlate with peripheral bloodforming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased., Blood disorders
Additional Information
Repeated dose toxicity - Rat - male and female - Oral - No observed adverse effect level - 100 mg/kg
RTECS: CY1400000

12. Ecological information

12.1 Toxicity
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 15.00 - 32.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates
EC50 - Ceriodaphnia dubia (water flea) - 17.2 mg/l - 48 h
Toxicity to algae

Growth inhibition
EC50 - Pseudokirchneriella subcapitata (green algae) - 100 mg/l - 72 h
Method: OECD Test Guideline 201
12.2 Persistence and degradability
Biodegradability
Aerobic - Exposure time 28 d Result: 96 % - Readily biodegradable. Method: OECD Test Guideline 301F
12.3 Bioaccumulative potential
Bioaccumulation
Leuciscus idus (Golden orfe) - 3 d -0.05 mg/l
Bioconcentration factor (BCF): 10
12.4 Mobility in soil
No data available
12.5 Results of PBT and vPvB assessment
No data available
12.6 Other adverse effects
Harmful to aquatic life with long lasting effects.

13. Disposal considerations
13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

14. Transport Information Table

		ADR/RID – European packaging certification	IMDG International Maritime Dangerous Goods Code	IATA – DGR International Air Travel Association – Dangerous Goods Regulations
14.1	**UN Number**	1114	1114	1114
14.2	**UN Proper Shipping name**	BENZENE	BENZENE	Benzene
14.3	**Transport Hazard Class**	3	3	3
14.4	**Packaging group**	II	II	II
14.5	**Environmental Hazards**	No	No	No
14.6	**Special precautions for user**	No data available.		

15. Regulatory information
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulatory information
HSNO Approval Code: HSR001038
HSNO Group Standard Approval: HSR002596 - Laboratory Chemicals and Reagent Kits Group Standard 2006
Tracking Required: 6.1B
Approved Handler Cert.: 6.1B, 6.1C

16. Disclaimer

The information above is believed to be accurate and represents the best information currently available to us. However, the information is not a guarantee expressed or implied, with respect to such information, and we assume no liability resulting from its use. Anyone using the chemical described here should ensure that he or she has the appropriate training and has the expertise and any equipment required for safe handling. If clarification or further information is required, please contact ECP Ltd or refer to the official handler of dangerous goods within your own company. The user should also make their own investigations to determine the suitability of the product for their particular purposes. In no event shall the company 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 howsoever arising, even if the company has been advised of the possibility of such damages.

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