*Centre Anti-Poison pour le Québec: (800) 463-5060*
*Tél. (Qc): (418) 660-8666 / 800-890-8666*
*Fax. (Qc): (418) 660-8998*

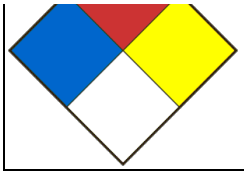
SAFETY DATA SHEET

# SECTION 01 - PRODUCT AND COMPANY IDENTIFICATION

| | | | |
|---|---|---|---|
| **Product Identifier**<br>BENZENE | | **Product Use**<br>Laboratory use | |
| **Chemical formula**<br>$C_6H_6$ | | **Product code**<br>BR-0110; BH-0100 | **Molar weight**<br>78,11 |
| **Chemical name / Commercial name / Synonymous**<br>ANNULENE, BENZENE, BENZIN, BENZOL, BENZOLENE, CARBON OIL, COAL NAPHTHA, CYCLOHEXATRIENE, PHENYL HYDRIDE, PYROBENZOLE | | | |
| **Supplier's name**<br>Laboratoire MAT | | **Address-Street**<br>610, Adanac Street | |
| **City**<br>Québec | | **Province**<br>Québec | |
| **Postal code**<br>G1C 7B7 | **Internet**<br>www.labmat.com | **Phone number**<br>418-660-8666 / 800-890-8666 | |
| **Emergency phone** | CANUTEC: 613-996-6666 | CENTRE ANTI-POISON DU QUÉBEC 800-463-5060 | |
| **Date SDS**<br>10/5/2020 | **SDS Prepared by**<br>Laboratoire MAT | **E-Mail**<br>labmat@labmat.com | |

## SECTION 02 - HAZARDS IDENTIFICATION

| | |
|---|---|
| **Classification WHIMS / GHS** | Flammable liquids category 2<br>Skin corrosion/irritation - Skin irritation category 2<br>Serious eye damage/ Eye irritation category 2A<br>Germ cell mutagenicity category 1A<br>Carcinogenicity category 1A<br>Specific Target Organ Toxicity - Repeated exposure category 1<br>Aspiration hazard category 1 |
| **Signal Word** | DANGER |
| **Hazards statements (H)** | H225 Highly flammable liquid and vapor.<br>H315 Causes skin irritation.<br>H319 Causes serious eye irritation.<br>H340 May cause genetic defects.<br>H350 May cause cancer.<br>H304 May be fatal if swallowed and enters airways.<br>H372 Causes damage to organs through prolonged or repeated exposure. |
| **Precautionary statements (P)** | P201 Obtain special instructions before use.<br>P202 Do not handle until all safety precautions have been read and understood.<br>P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.<br>P233 Keep container tightly closed.<br>P240 Ground/bond container and receiving equipment.<br>P241 Use explosion-proof electrical/ventilating/lighting equipment.<br>P242 Use only non-sparking tools.<br>P243 Take precautionary measures against static discharge.<br>P264 Wash the areas of the body that have been in contact with the product after handling.<br>P280 Wear protective gloves/protective clothing/eye protection/face protection.<br>P302 + P352 IF ON SKIN: Wash with plenty of soap and water.<br>P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.<br>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P308 + P313 IF exposed or concerned: Get medical advice/attention.<br>P321 Specific treatment (see section 4 of the SDS and on this label).<br>P332 + P313 If skin irritation occurs: Get medical advice/attention.<br>P337 + P313 If eye irritation persists: Get medical advice/attention.<br>P362 + P364 Take off contaminated clothing and wash it before reuse.<br>P370 + P378 In case of fire: Use water spray or alcohol-resistant foam, or dry powder or carbon dioxide for extinction.<br>P403 + P235 Store in a well-ventilated place. Keep cool.<br>P405 Store locked up.<br>P501 Dispose of contents/container in accordance with local / regional / national / international regulations or contact a specialist waste disposal company.<br>P260 Do not breathe dust / fume / gas / mist / vapors / spray.<br>P270 Do no eat, drink or smoke when using this product.<br>P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.<br>P314 Get medical advice/attention if you feel unwell.<br>P331 Do NOT induce vomiting. |
| **PICTOGRAMS** |  |
| **Other dangers** | NFPA (Risk: 0=No risk; 1=Slight; 2=Moderate; 3=Significant; 4=Extreme) |
|  | **Health** 2<br>**Fire** 4 |



**Reactivity** 0
**Special danger**

## SECTION 03 - COMPOSITION/INFORMATION ON INGREDIENTS

| Ingrédients (Dénomination chimique / synonymes) | Numéro CAS et tout identificateur unique | Concentration (%) |
|---|---|---|
| Benzène | 71-43-2 | <=100 |

## SECTION 04 - FIRST AID MEASURES

| | |
|---|---|
| **Eye contact** | Wash eyes with large amounts of water for at least 15 minutes while holding eyelids apart to rinse eyes. If irritation persists, seek medical attention. |
| **Skin contact** | Wash skin with plenty of water for at least 15 minutes. Remove soiled clothing. If irritation persists, seek medical attention. |
| **Inhalation** | Move the unwell person to the fresh air. If breathing is difficult, give oxygen. Consult a physician. |
| **Ingestion** | Do NOT induce vomiting. If the person is conscious, rinse the mouth with water. Never give anything by mouth to an unconscious person. Consult a physician. |
| **Most important symptoms and effects (acute and delayed)** | Main symptoms of high exposure: Vertigo. Nausea. Headaches. Narcosis. Ref. section 11. |
| **Immediate medical attention and special treatment, if necessary** | In case of medical consultation, keep this sheet available. |
| **General advice** | Show this safety data sheet to the doctor in attendance. |

## SECTION 05 - FIREFIGHTING MEASURES

| | |
|---|---|
| **Flammability** | Yes |
| **Ignition conditions** | Strong oxidizing agents, heat, sparks and open flame. Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| **Suitable extinguishing media** | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
| **Unsuitable extinguishing media** | Data not available. |
| **Hazardous combustion products** | Hazardous combustion products formed under fire conditions: Carbon oxides. |
| **Special fire and explosion hazards** | Steam can travel a great distance and ignite on sources of ignition such as heaters, electrical appliances, cigarettes, sparks, etc. Containers exposed to fire may explode. Vapors may form flammable or explosive mixtures with air. Benzene can form unstable explosive compounds in the presence of nitric acid, silver perchlorate, arsenic pentafluoride, iodine pentafluoride and potassium methoxide. Reacts violently to contact or in combination with perchlorates, permanganates, acetic acid, sulphuric acid, aluminum chloride, silver perchlorate, bromine trifluoride, chlorine, chromium trioxide, nickel (Raney), potassium peroxide and sodium peroxide. May react violently with incompatible products (Ref Section 10). |
| **Special protective equipment and precautions for firefighters** | Discard incompatible substances if this can be done without risk. Firefighters should be equipped with standard protective equipment, fireproof clothing, face mask, gloves, protective boots and, where appropriate, self-contained breathing apparatus. |

## SECTION 06 - ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| **Methods and materials for containment and cleaning up / Personnal precautions, protective equipment** | Evacuate personnel to safe areas. Remove all sources of ignition. Avoid the accumulation of charges electrostatic. Absorb the product with sand or vermiculite. Dilute residues with water, clean and rinse. Ensure a good ventilation of the premises. Dispose of residues in a container for disposal of hazardous materials. When handling, wear suitable safety equipment. Use breathing apparatus if necessary. Avoid breathing vapors, mist or gas. Ensure a good ventilation of the premises. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Do not let product enter drains. |

## SECTION 07 - HANDLING AND STORAGE

| | |
|---|---|
| **Conditions for safe storage** | Store in cool place. Use venting and electrical equipment that is grounded and does not produce ignition sources (sparks). Protect from the sun's rays. 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. |
| **Methods of handling** | Bottle in the glass preferably. Always open containers slowly to allow any excess pressure to vent. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. Wear personal protective equipment when handling. Always ensure good ventilation. Transport according to TDG (ref Section 14) |

## SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

**Workplace control parameters**

| Components | CAS-No. | Value | Control parameters | Basis |
|---|---|---|---|---|
| Benzene | 71-43-2 | TWA | 0.5 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| Remarks | Leukemia<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Confirmed human carcinogen<br>Danger of cutaneous absorption | | | |
| | | TWA | 0.5 ppm | Canada. British Columbia OEL |
| | IARC '1' applies to substances categorized as carcinogenic to humans, and used when there is sufficient evidence of carcinogenicity in humans.<br>ACGIH 'A1' applies to those substances confirmed as human carcinogens based on the weight of evidence from epidemiological studies<br>Contributes significantly to the overall exposure by the skin route. | | | |
| | STEL<br><br>2.5 ppm<br><br>Canada. British Columbia OEL | | | |
| | IARC '1' applies to substances categorized as carcinogenic to humans, and used when there is sufficient evidence of carcinogenicity in humans.<br>ACGIH 'A1' applies to those substances confirmed as human carcinogens based on the weight of evidence from epidemiological studies<br>Contributes significantly to the overall exposure by the skin route. | | | |
| | | TWA | 0.5 ppm<br>1.6 mg/m3 | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | Confirmed Human Carcinogen (means that the agent is carcinogenic to humans)<br>Substance may be readily absorbed through intact skin | | | |
| | | STEL | 2.5 ppm<br>8 mg/m3 | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | Confirmed Human Carcinogen (means that the agent is carcinogenic to humans)<br>Substance may be readily absorbed through intact skin | | | |
| | | TWAEV | 1 ppm<br>3 mg/m3 | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| | A substance which may not be recirculated in accordance with section 108<br>A substance to which exposure must be reduced to a minimum in accordance with section 42<br>Carcinogenic effect detected in humans | | | |
| | STEV<br><br>5 ppm<br>15.5 mg/m3<br>Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants | | | |
| | A substance which may not be recirculated in accordance with section 108<br>A substance to which exposure must be reduced to a minimum in accordance with section 42<br>Carcinogenic effect detected in humans | | | |
| | | STEL | 2.5 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | Leukemia<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Confirmed human carcinogen<br>Danger of cutaneous absorption | | | |
| | | TWAEV | 0.5 ppm | Canada. Occupational Health and Safety Act - Part 11: Exposure Values for Acrylonitrile, Benzene and Mercury |
| | The values listed in this part apply to workplaces to which the designated substance regulation does not apply | | | |
| | | STEV | 2.5 ppm | Canada. Occupational Health and Safety Act - Part 11: Exposure Values for Acrylonitrile, Benzene and Mercury |
| | The values listed in this part apply to workplaces to which the designated substance regulation does not apply | | | |
| | | TWA | 0.5 ppm | Canada. Ontario OELs |
| | Skin | | | |
| | | STEL | 2.5 ppm | Canada. Ontario OELs |
| | Skin | | | |

| | |
|---|---|
| **Data source** | Sigma-Aldrich. |
| **Ventilation** | Fan. |
| **Respiratory** | If work under the hood is not possible, or if the permissible levels are exceeded, use a mechanical filter / cartridge against NIOSH vapors or a respirator with air supply. |
| **Gloves** | Handle with gloves. |
| **Eyes** | Safety goggles with safety shutters. |
| **Shoes** | Safety shoes. |
| **Clothing** | Labcoat. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. |
| **Engineering control** | Have safety showers and eyewash stations in the workplace in case of an emergency and a ventilation system to maintain the level of concentrations in the air below the exposure limit values. |

## SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Physical state** | Liquid. |
| **Appearance** | Liquide incolore- |
| **Odour** | Odeur aromatique.. |
| **Odour threshold** | 0.5-2.0ppm |
| **pH** | Donnée non disponible. |
| **Melting point / Freezing point** | 5.5°C |
| **Initial boiling point** | 80°C |
| **Boiling range** | Data not available |
| **Flash point** | -11°C |
| **Evaporation rate** | 2.8% |
| **Flammability** | Yes |
| **Lower flammable / Explosive limit** | 1.3% |
| **Upper flammable / Explosive limit** | 8.0% |
| **Vapour pressure** | 74.6 mmHg @ 20°C. |
| **Vapour density** | 2.77 (Air=1)- |
| **Relative density** | 0.88g/cm³ |
| **Solubility** | Très peu soluble dans l'eau (0.188%). Miscible avec l'alcool, l'acétone, le chloroforme et l'éther. |
| **Partition coefficient water/n-octanol** | log Pow : 2.13 à 25°C- |
| **Auto-ignition temperature** | 562°C |
| **Decomposition temperature** | Data not available |
| **Viscosity** | Data not available |

## SECTION 10 - STABILITY AND REACTIVITY

| | |
|---|---|
| **Reactivity** | Flammable product, may ignite with source of ignition, if temperature above flash point. May ignite on contact with oxidants. |
| **Chemical stability** | Stable under recommended storage conditions. |
| **Possibility of hazardous reactions** | Stable under normal conditions. Vapors may form explosive mixture with air. Highly flammable liquid and vapors. May react violently with incompatible substances. |
| **Conditions of instability (Including sensitivity to shock / static discharge / vibration)** | Heat, flames and sparks. Avoid contact with incompatible materials. |
| **Incompatible material** | Strong oxidizing agents. Acids. Bases. Halogens. Metallic salts. Acetic acid, sulfuric acid, aluminum chloride, pentafluoride arsenic, bromine trifluoride, chlorine, chromium trioxide, iodine pentafluoride, ozone, potassium methoxide, heat and humidity. Anhydrides of acid. |
| **Hazardous decomposition products** | Hazardous decomposition products formed under fire conditions. Carbon oxides. |

**BENZENE**

| | |
|---|---|
| **Routes of exposure** | Ingestion, inhalation, skin and eyes. |
| **Acute exposition effects / symptoms:** | By exposure route below. |
| **- Eyes** | Irritation and may cause inflammation of the conjunctiva. |
| **- Skin** | Severe irritation and dermatitis. |
| **- Inhalation** | Irritation of the mucous membranes and respiratory tract. Narcotic effects, chest pain, cough, dyspnea, headache, drowsiness, dizziness, nausea and vomiting, sweating, asthenia, convulsions, respiratory collapse, unconsciousness, coma and can lead to death. Aspiration of small amounts of fluid immediately causes pulmonary edema and hemorrhage of lung tissue. |
| **Acute toxicity (Ingestion)** | Harmful if swallowed. Irritation of the mucous membranes. Narcotic effects, gastrointestinal disorders, cramps, diarrhea, headache, dizziness, drowsiness, hallucinations, incoordination, erythema, nausea and vomiting, convulsions and may result in unconsciousness and coma.NOTE: aspiration of the product into the lungs can cause chemical pneumonia. Aspiration hazard if swallowed - may enter the lungs and cause lesions. |
| **Chronic exposure effects / symptoms** | Is recognized as a carcinogen (class 1) by IARC. Inhalation of high concentrations of benzene may have an initial stimulating effect on the central nervous system characterized by an ex-exciting effect, nervous arousal and/or dizziness, depression, drowsiness or fatigue. The victim may experience chest tightness, shortness of breath and loss of consciousness, tremors, convulsions and death, caused by respiratory paralysis or circulatory collapse, can ensue within minutes or several hours of serious exposures. The main target organ is the hematopoietic system. Bleeding of the nose, gums or mucous membranes as well as the appearance of purpuric plaques (small blisters), pancytopenia, leukopenia, thrombocytomenia, spinal aplasty and leukemia may occur as the condition progresses. Bone marrow may appear normal, aplastic or hyperplastic and may not depend on peripheral hematopoietic tissues. The onset of the effects of prolonged exposure to benzene can be latent for many months or years after stopping the same exposure., Blood disorders . |
| **DL50 (specify species and route of entry)** | LD50 Oral - Rat - > 2 000 mg/kg. LD50 Dermal - Rabbit - 8263 mg/kg |
| **CL50 (specify species and route of entry)** | LC50 Inhalation - Rat - 4h - 43.7 mg/L. |

## SECTION 12 - ECOLOGICAL INFORMATION

| | |
|---|---|
| **Ecotoxicity** | LC50 - Pimephales promelas (fathead minnow) - 15.00-32.00 mg/L - 96 h CE50 - water flea - 17.2 mg/L - 48 h EC50 - Pseudokirchneriella subcapitata (green algae) - 100 mg/L - 72 h - growth inhibition. |
| **Persistence and degradability** | Biodegradability aerobic. Result: 96 % - Readily biodegradable. Method: OECD Test Guideline 301F. |
| **Bioaccumulative potential** | Bioaccumulation Leuciscus idus (Golden orfe) - 3 d. Bioconcentration factor (BCF): 10. |
| **Mobility in soil** | Data not available. |
| **Other adverse effects** | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects. |

## SECTION 13 - DISPOSAL CONSIDERATIONS

| | |
|---|---|
| **Waste Disposal Method** | Dispose of contents / container in accordance with local / regional / national / international regulations / or contact a specialist waste disposal company. |
| **Contaminated Packaging** | Dispose of as unused product. |

## SECTION 14 - TRANSPORT INFORMATION

| | |
|---|---|
| **UN Number** | 1114 |
| **UN Proper shipping name** | BENZÈNE |
| **Transport hazard class(es)** | 3 Flammable liquids |
| **Packing group** | II |
| **Limited quantity index** | 1L |
| **ERAP Index** | - |
| **Special precautions** | - |

## SECTION 15 - REGULATORY INFORMATION

| | |
|---|---|
| **WHIMS CANADA** | Flammable liquids category 2<br>Skin corrosion/irritation - Skin irritation category 2<br>Serious eye damage/ Eye irritation category 2A<br>Germ cell mutagenicity category 1A<br>Carcinogenicity category 1A<br>Specific Target Organ Toxicity - Repeated exposure category 1<br>Aspiration hazard category 1 |

## SECTION 16 - OTHER INFORMATION

**Further information**

**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. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. It does not represent any guarantee of the properties of the product. Laboratoire MAT Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.**

**Last Update: 10/5/2020**