TCI AMERICA

SAFETY DATA SHEET

Revision number: 3
Revision date: 08/18/2015

1. IDENTIFICATION

Product name: Nitrobenzene
Product code: N0758

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
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Chemtrec 24-Hour
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TCI America
Environmental Health Safety and Security
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2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200:
Acute Toxicity - Oral [Category 4]
Acute Toxicity - Dermal [Category 3]
Acute Toxicity - Inhalation [Category 4]
Eye Damage/Irritation [Category 2B]
Carcinogenicity [Category 2]
Toxic to Reproduction [Category 2]
Specific Target Organ Toxicity (Single Exposure) [Category 1]
Specific Target Organ Toxicity (Repeated Exposure) [Category 1]
Flammable Liquids [Category 4]
Aquatic Hazard (Acute) [Category 2]
Aquatic Hazard (Long-Term) [Category 2]

Signal word: Danger!

Hazard Statement(s):
Causes eye irritation
Combustible liquid
Harmful if swallowed
Harmful if inhaled
Suspected of causing cancer
Suspected of damaging fertility or the unborn child
Toxic in contact with skin
Toxic to aquatic life
Toxic to aquatic life with long lasting effects
Causes damage to: Liver Blood (System) Nervous System Kidney Testis
Causes damage to organs: Liver Blood (System) Thyroid Gland Nervous System Kidney Testis Adrenal Gland through prolonged or repeated exposure.

Pictogram(s) or Symbol(s):

Precautionary Statement(s):

2. HAZARD(S) IDENTIFICATION

[Prevention] Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Wear protective gloves and protective clothing. Avoid breathing fume, mist, vapors or spray. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing, eye protection and face protection. Do not breathe fume, mist, vapors or spray. Keep away from heat, sparks, open flames or other hot surfaces. - No smoking. Wear protective gloves, eye protection and face protection.

[Response] If swallowed: Immediately call a poison center or doctor. Rinse mouth. If on skin: Wash with plenty of water. Call a poison center or doctor if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. If exposed or concerned: Get medical advice or attention. If exposed: Call a poison center or doctor. Get medical advice or attention if you feel unwell. In case of fire: Use dry chemical, CO2, water spray or alcohol-resistant foam to extinguish.

[Storage] Store locked up. Store in well-ventilated place. Keep cool.

[Disposal] Dispose of contents and container in accordance with US EPA guidelines for the classification and determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)

Hazards not otherwise classified: [HNOC] Causes mild skin irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance
Components: Nitrobenzene
Percent: >99.5%(GC)
CAS Number: 98-95-3
Molecular Weight: 123.11
Chemical Formula: $C_6H_5NO_2$

4. FIRST-AID MEASURES

Inhalation: Immediately call a poison center or doctor. Effects of exposure (inhalation) to substance may be delayed. Inhalation of vapors or contact with substance will result in contamination and potential harmful effects. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Skin contact: Immediately call a poison center or doctor. Effects of exposure (skin contact) to substance may be delayed. Remove and wash contaminated clothing before re-use. Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye contact: IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Contact with material may irritate or burn eyes. Call emergency medical service. Move victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Ingestion: Harmful if swallowed. Do not induce vomiting with out medical advice. Effects of exposure (ingestion) to substance may be delayed. Call a physician or Poison Control Center immediately. Do not use mouth-to-mouth method if victim ingested the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Loosen tight clothing such as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms/effects:

Acute: Redness.
Delayed: Possibly carcinogenic to humans.

Immediate medical attention: WARNING: It might be dangerous to the person providing aid to give mouth-to-mouth respiration, because the inhaled material is toxic. CAUTION: Victim may be a source of contamination. If breathing has stopped, perform artificial respiration. Use first aid treatment according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

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Suitable extinguishing media: Dry chemical, CO_2 or water spray. Consult with local fire authorities before attempting large scale fire fighting operations.

Specific hazards arising from the chemical

Hazardous combustion products: These products include: Carbon oxides Nitrogen oxides

Other specific hazards: Closed containers may explode from heat of a fire.

Special precautions for fire-fighters:

Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material. CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. Do not use straight streams. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Move containers from fire area if you can do it without risk.

Special protective equipment for fire-fighters:

Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with skin, eyes, and clothing. Keep people away from and upwind of spill/leak. Use spark-proof tools and explosion-proof equipment. Remove all sources of ignition. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Personal protective equipment: Wear eye protection (splash goggles) and face protection (full length face shield). Wear protective clothing (chemical resistant suit and chemical resistant boots). Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile).

Emergency procedures: Isolate area until gas has dispersed. Do not clean-up or dispose except under supervision of a specialist. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and excercise caution. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed.

Methods and materials for containment and cleaning up:

ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). All equipment used when handling the product must be grounded. Stop leak if without risk. Ventilate the area. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Use clean non-sparking tools to collect absorbed material. Dike far ahead of spill; use dry sand to contain the flow of material.

Environmental precautions:

Keep away from living quarters. Environmental hazard. Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into sewers, basements or confined areas; dike if needed.

7. HANDLING AND STORAGE

Precautions for safe handling: Do NOT breath gas, fumes, vapor, or spray. Manipulate under an adequate fume hood. Do not ingest. Avoid contact with skin and eyes. Avoid contact with skin. Avoid exposure - obtain special instructions before use. Avoid prolonged or repeated exposure. Normal measures for preventive fire protection. Avoid contact - obtain special instructions before use. Keep away from heat and sources of ignition. Use explosion-proof equipment. Use only non-sparking hand tool when handling this product. Ground all equipment containing material. Take measures to prevent build up of electrostatic charge. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not eat, drink, or smoke. Keep away from sources of ignition.

Conditions for safe storage: Store locked up. Keep containers tightly closed in a cool, well-ventilated place. Keep away from sources of ignition. Store and use away from heat, sparks, open flame, or any other ignition source. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods.

Storage incompatibilities: Store away from oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits:

ACGIH TLV (TWA): 1 ppm (skin)

OSHA PEL (TWA): 1 ppm (skin)

Appropriate engineering controls:

Handle only in a fully enclosed system and equipment. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Ventilation is normally required when handling or using this product. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial engineering/laboratory practices when handling any chemical.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protective equipment

Respiratory protection: Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Hand protection: Wear protective gloves.
Eye protection: Splash goggles.
Skin and body protection: Wear protective clothing (chemical resistant suit and chemical resistant boots).

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Color: Pale yellow - Yellow
Odor: Almond-like
Odor threshold: 0.018 ppm

Melting point/freezing point: 6°C (43°F)
Boiling point/range: 210°C (410°F)
Decomposition temperature: No data available
Relative density: 1.20
Kinematic Viscosity: No data available

Partition coefficient: n-octanol/water (log P_{ow}) 1.85

Flash point: 88°C (190°F)
Flammability (solid, gas): No data available

pH: No data available
Vapor pressure: 20Pa/20°C
Vapor density: 4.2
Dynamic Viscosity: No data available

Evaporation rate: (Butyl Acetate = 1) No data available

Autoignition temperature: 480°C (896°F)
Flammability or explosive limits:
Lower: 1.8%
Upper: 40%

Solubility(ies):
Water: Very slightly soluble (1797mg/L, 25°C)
Very soluble: Ether, Alcohols, Benzene
Soluble: Acetone

10. STABILITY AND REACTIVITY

Reactivity: Not Available.
Chemical Stability: Stable under recommended storage conditions. (See Section 7)
Possibility of Hazardous Reactions: In use, may form flammable/explosive vapor-air mixture.
Conditions to avoid: Avoid excessive heat and light.
Incompatible materials: Oxidizing agents
Hazardous Decomposition Products: No data available

11. TOXICOLOGICAL INFORMATION

RTECS Number: DA6475000

Acute Toxicity:
ihl-rat LC50:556 ppm/4H
orl-rat LD50:349 mg/kg
orl-wmn TDLo:200 mg/kg
skn-rbt LDLo:600 mg/kg

Skin corrosion/irritation:
skn-rbt 500 mg/24H MLD

Serious eye damage/irritation:
eye-rbt 500 mg/24H MLD

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
mmo-ham-lng 200 ug/L (+S9)

Carcinogenicity:

ihl-mus TCLo:50 ppm/6H/2Y-C

ihl-rat TCLo:25 ppm/6H/2Y-I

IARC: Group 2B (Possibly carcinogenic to humans) .

NTP: b (Reasonably anticipated to be carcinogens).

OSHA: No data available

Reproductive toxicity:
ihl-rat TCLo:5 ppm/6H(90D male)

orl-rat TDLo:300 mg/kg(1D male)

Routes of Exposure: Inhalation, Eye contact, Ingestion, Skin contact.
Symptoms related to exposure:
Overexposure may result in serious illness or death. Eye contact may result in redness or pain. Skin contact may result in redness, pain or dry skin.
Potential Health Effects:
Skin and eye contact may result in irritation.
Target organ(s):
Causes damage to: Liver Blood (System) Nervous System Kidney Testis
Causes damage to organs: Liver Blood (System) Thyroid Gland Nervous System Kidney Testis Adrenal Gland through prolonged or repeated exposure.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Fish:	48h LC50:125 ppm (Oryzias latipes)
Crustacea:	No data available
Algae:	No data available

Persistence and degradability:	3.3% (by BOD), 1.6% (by TOC), 0.4% (by GC), 1.2% (by UV-VIS)
Bioaccumulative potential (BCF):	2.0 - 4.8 (conc. 125 ppb), 1.6 - 7.7 (conc. 12.5 ppb)
Mobillity in soil:	No data available
Partition coefficient: n-octanol/water (log P_{ow})	1.85
Soil adsorption (Koc):	No data available
Henry's Law: constant (PaM^3/mol)	2.4

13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.

Disposal of container: Dispose of as unused product. Do not re-use empty containers.

Other considerations: Observe all federal, state and local regulations when disposing of the substance.

DOT (US)

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1662	Nitrobenzene	6.1 Toxic material.	II

IATA

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1662	Nitrobenzene	6.1 Toxic material.	II

IMDG

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1662	Nitrobenzene	6.1 Toxic material.	II

Marine Pollutant: Marine Pollutant
EmS number: F-A, S-A
Reportable Quantitiy: 1000 Pounds (454 Kilograms)

15. REGULATORY INFORMATION

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Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:

SARA 313:	Not Listed
SARA 302:	Not Listed

State Regulations

State Right-to-Know

Massachusetts	Not Listed
New Jersey	Listed
Pennsylvania	Not Listed
California Proposition 65:	Listed

Other Information

NFPA Rating:

Health:	3
Flammability:	2
Instability:	0

HMIS Classification:

Health:	2
Flammability:	2
Physical:	0

International Inventories

WHMIS hazard class:	B3: Combustible Liquid. D1B: Materials causing immediate and serious toxic effects. (Toxic) D2A: Materials causing other toxic effects. (Very Toxic)
EC-No:	202-716-0

16. OTHER INFORMATION

Revision date: 08/18/2015
Revision number: 3

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.