MATERIAL SAFETY DATA SHEET

Product Name: Nitrobenzene **CAS No.:** 98-95-3 **Version: 0**

1. Identification

Product Code	:	90195, 90474
Company Name	:	Advent Chembio Private Limited
Address	:	W-288, MIDC, TTC INDUSTRIAL AREA, THANE-BELAPUR ROAD, RABALE, NAVI MUMBAI - 400 701.
E-mail	:	info@adventchembio.com
WEBSITE	:	www.adventchembio.com
Company Phone Number	:	022-27690837

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
NITROBENZNE	98-95-3	99-100 %

3. Hazards Identification

Hazard classification

Emergency Overview	:	DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE METHEMOGLOBINEMIA. AFFECTS, BLOOD, LIVER, KIDNEYS, AND REPRODUCTIVE SYSTEM. CAUSES IRRITATION TO EYES AND SKIN. POSSIBLE CANCER HAZARD. MAY CAUSE CANCER BASED ON ANIMAL DATA. COMBUSTIBLE LIQUID AND VAPOR.
Health Rating	:	3 - Severe (Poison)
Flammability Rating	:	2 - Moderate
Reactivity Rating	:	2 - Moderate
Contact Rating	:	3 - Severe (Life)

Potential Health Effects

Inhalation	:	May be absorbed through inhalation of vapors. Symptoms parallel that following ingestion exposure.
Ingestion	:	May cause headache, shallow respiration, dizziness, vomiting, weakness, and blood pressure fall. Forms methemoglobin in the blood, reducing oxygen transport and producing cyanosis, and anemia. Convulsions, coma and death may follow. Symptoms may be delayed from 1 to 4 hours, and workers developing fatal cases of Methemoglobinemia may not immediately feel sick. Because of bitter almond odor, cyanide poisoning may be suspected, but cyanide acts much faster. Poisoning closely resembles that due to aniline. Estimated lethal dose 1 to 5 grams.
Skin Contact	:	May be irritating and sensitizing to the skin. May be rapidly absorbed through the skin, with symptoms paralleling that following

ingestion exposure.

Eye Contact:	:	Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage.
Chronic Exposure	:	Repeated or prolonged exposure through any route may cause damage to the central nervous system, liver,spleen, kidneys, and bone marrow. May also cause weight loss, anemia, jaundice, hemolysis, weakness, and irritability. A two year study titled "A Chronic Inhalation Toxicity Study of Nitrobenzene in B6CF1 Mice, Fischer 344 Rats and Sprague-Dawley Rats", was released by the Chemical Industry Institute of Toxicology (CIIT). The report indicates that Nitrobenzene has weak carcinogenic activity in rodents after chronic inhalation exposure and may express carcinogenic activity in humans. Based upon the result of this animal testing, Nitrobenzene should be handled as a potential carcinogen.
Aggravation of Pre-existing Conditions	:	Persons with pre-existing skin or blood disorders or impaired liver, kidney, or cardiovascular function may be more susceptible to the effects of this substance. The influence of ethyl alcohol may aggravate the toxic effects of nitrobenzene..

4. First Aid Measures

General information	:	Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand. Show this safety data sheet to the doctor in attendance.
Ingestion	:	Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician immediately.
Inhalation	:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not give mouth to mouth resuscitation. CALL A PHYSICIAN IMMEDIATELY.
Skin contact	:	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately. Thorough cleansing of the entire contaminated area of the body including scalp and nails is of the utmost importance.
Eye contact	:	Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.
Note to Physician	:	Consider methylene blue as an antidote

5. Fire fighting measures

Fire	:	Flash point: 88C (190F) CC. Auto ignition temperature: 482C (900F).Flammable limits in air % by volume: lel: 1.8 (lel @ 93C).
Explosion	:	Above the flash point, explosive vapor-air mixtures may be formed. Contact with strong oxidizers may cause fire. Vapors can flow along surfaces to distant ignition source and flash back. Forms explosive mixtures with aluminum chloride, aniline plus glycerine, nitric acid, nitrogen tetraoxide, aromatic nitrogen compounds, urea perchlorate, sodium hydroxide, sulfuric acid, potassium, potassium/sodium alloys, and silver perchlorate.
Fire Extinguishing Media	:	Water spray, dry chemical, alcohol foam, or carbon dioxide. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.
Special Information	:	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode..

6. **Accidental Release Measures**

Personal precautions, protective equipment and emergency procedures	:	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.
Methods and material for containment and cleaning up	:	Eliminate all ignition sources if safe to do so. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use only non-sparking tools. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.
Notification Procedures	:	Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.
Environmental precautions	:	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and Storage

Precautions for safe handling	:	DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash hands thoroughly after handling.
Conditions for safe storage, including any incompatibilities	:	Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure Controls Personal Protection

Airborne Exposure Limits		
Nitrobenzene	:	OSHA Permissible Exposure Limit (PEL): 1 ppm (TWA) skin. ACGIH Threshold Limit Value (TLV): 1 ppm (TWA) skin, A3- confirmed Animal Carcinogen with Unknown Relevance to Humans.
Ventilation System	:	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne.
Exposure Limits	:	Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
Personal Respirators (NIOSH Approved)	:	If the exposure limit is exceeded, a half-face organic vapor respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Eye/face protection	:	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Skin Protection	:	Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area .

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9. Physical and Chemical Properties

Appearance	:	Pale yellow to brown, oily liquid.
Odor	:	Almond odor.
pH	:	No information found.
Melting point/freezing point	:	5.7C (43F).
Initial boiling point and boiling range	:	211C (412F)
Flash Point	:	Not applicable.
Vapor pressure	:	1.0 @ 44.4C (111F).
Vapor density	:	4.3 (Air=1)
Relative density	:	1.20 @ 20C/4C.
Solubility in water	:	Practically insoluble in water.
Solubility (other)	:	No data available.
Formula	:	C6H5 NO2
Molecular Weight	:	123.11

10. Stability and Reactivity

Stability	:	Stable under ordinary conditions of use and storage. Due to low electric conductivity, the substance can generate electrostatic charges as a result of flow, agitation, etc.
Hazardous Decomposition Products	:	Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides.
Hazardous Polymerization	:	Will not occur.
Incompatibilities	:	Reducing agents, oxidizing agents, aluminum chloride, aniline plus glycerine, nitric acid, nitrogen tetraoxide. silver perchlorate, potassium, potassium/sodium alloys, aromatic nitrogen compounds, sodium hydroxide, sulfuric acid, tin, and zinc.
Conditions to Avoid:	:	Heat, flame, ignition sources, freezing, incompatibles.

11. Toxicological Information

Toxicological Data	:	Oral rat LD50: 349 mg/kg; skin rat LD50: 2100 mg/kg; Inhalation rat LC50: 556 ppm/4H; investigated as a mutagen, reproductive effector.
Hazardous Decomposition Products	:	Burning may produce carbon monoxide, carbon dioxide, nitrogen xides.
Reproductive Toxicity	:	In laboratory animals, this compound has caused both birth defects and damage to the reproductive system.
Carcinogenicity	:	A two year study titled "A Chronic Inhalation Toxicity Study of Nitrobenzene in B6CF1 Mice, Fischer 344 Rats and Sprague-Dawley Rats", was released by the Chemical Industry Institute of Toxicology (CIIT). The report indicates that Nitrobenzene has weak carcinogenic activity in rodents after chronic inhalation exposure and may express carcinogenic activity in humans. Based upon the result of this

animal testing, Nitrobenzene should be handled as a potential carcinogen.

Conditions to Avoid: : Heat, flame, ignition sources, freezing, incompatibles.

12. Ecological Information

Environmental Fate **:** When released into the soil, this material may leach into groundwater. When released into water, this material may evaporate to a moderate extent. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. This material has an experimentally-determined bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to have a half-life of less than 1 day.

Environmental Toxicity **:** The EC50/48-hour values for daphnia are between 10 and 100 mg/l. The LC50/96-hour values for fish are over 100 mg/l. This material may be toxic to aquatic life.

13. Disposal consideration

Disposal instructions : Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated packaging : Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
DOT	UN1662	NITROBENZENE	6.1	II	NO
IMDG	UN1662	NITROBENZENE	6.1	II	NO
IATA	UN1662	NITROBENZENE	6.1	II	NO

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

16. Other Information

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