

SAFETY DATA SHEET

Creation Date 10-Jun-2014

Revision Date 18-Dec-2025

Revision Number 7

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name Nitrobenzene (Certified ACS)

Cat No. : N91I-4; N91I-500

CAS No 98-95-3
Synonyms Essence of mirbane; Mirbane oil; Nitrobenzol

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Flammable liquids	Category 4
Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Blood.	

Label Elements

Signal Word
Danger

Hazard Statements

Combustible liquid
May cause cancer
May damage fertility
Causes damage to organs through prolonged or repeated exposure
Toxic if swallowed, in contact with skin or if inhaled

**Precautionary Statements****Prevention**

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

Response

IF exposed or concerned: Get medical attention/advice

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor

Skin

IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor if you feel unwell
Take off immediately all contaminated clothing
Take off contaminated clothing and wash before reuse

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor
Rinse mouth

Fire

In case of fire: Use CO₂, dry chemical, or foam to extinguish

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Harmful to aquatic life with long lasting effects

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

WARNING. Cancer and Reproductive Harm - <https://www.p65warnings.ca.gov/>.

3. Composition/information on Ingredients

Component	CAS No	Weight %
Nitrobenzene	98-95-3	99

4. First-aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact	Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes.
Inhalation	Remove to fresh air. If breathing is difficult, give oxygen. Immediate medical attention is required. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
Flash Point	88 °C / 190.4 °F
Method -	No information available
Autoignition Temperature	480 °C / 896 °F
Explosion Limits	
Upper	No data available
Lower	1.8%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Flammable. Combustible material. Containers may explode when heated.

Hazardous Combustion Products

Nitrogen oxides (NO_x). Carbon monoxide (CO). Carbon dioxide (CO₂).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
3

Flammability
2

Instability
0

Physical hazards
N/A

6. Accidental release measures

Personal Precautions	Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Remove all
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Environmental Precautions sources of ignition. Take precautionary measures against static discharges. Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

7. Handling and Storage

Handling Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Incompatible Materials. Reducing Agent. Acids. Bases. Alkali metals. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Nitrobenzene	TWA: 1 ppm Skin	(Vacated) TWA: 1 ppm (Vacated) TWA: 5 mg/m ³ Skin TWA: 1 ppm TWA: 5 mg/m ³	IDLH: 200 ppm REL = 1 ppm (TWA) REL = 5 mg/m ³ (TWA)	TWA: 1 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection 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 and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Organic gases and vapours filter. Type A. Brown. conforming to EN14387.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical State	Liquid		
Color	Yellow		
Odor	bitter almonds		
Odor Threshold	No information available		
Property	Values	Remarks	• Method
Melting Point/Range	5 - 6 °C / 41 - 42.8 °F		
Softening Point	No data available		
Boiling Point/Range	210 - 211 °C / 410 - 411.8 °F	@ 760 mmHg	
Flash Point	88 °C / 190.4 °F	Method - No information available	
Flammability (liquid)	Combustible liquid	On basis of test data	
Flammability (solid,gas)	Not applicable	Liquid	
Explosion Limits	Lower 1.8 Upper 40		
Autoignition Temperature	480 °C / 896 °F		
Decomposition Temperature	No data available		
pH	Not applicable		
Viscosity	No data available		
Water Solubility	slightly soluble		
Solubility in other solvents	No information available		
Partition Coefficient (n-octanol/water)			
Component	log Pow		
Nitrobenzene	1.86		
Vapor Pressure	0.2 mbar @ 20 °C		
Density / Specific Gravity	1.205		
Bulk Density	Not applicable	Liquid	
Vapor Density	4.25	(Air = 1.0)	
Particle characteristics	Not applicable (liquid)		
Other Information			
Molecular Formula	C6 H5 N O2		
Molecular Weight	123.11		
Explosive Properties	explosive air/vapour mixtures possible		

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions. Unstable if heated.
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Reducing Agent, Acids, Bases, Alkali metals, Oxidizing agent
Hazardous Decomposition Products	Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO ₂)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Information on expected route of exposure

Inhalation	Avoid breathing vapors or mists. Harmful by inhalation.
Ingestion	May be harmful if swallowed.
Eyes	Avoid contact with eyes.
Skin	Avoid contact with skin. Prolonged skin contact may defat the skin and produce dermatitis. Harmful in contact with skin.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitrobenzene	LD50 = 349 mg/kg (Rat)	LD50 = 760 mg/kg (Rabbit)	LC50 = 2.847 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; Category 2
Possible cancer hazard. May cause cancer based on animal data The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Nitrobenzene	98-95-3	Group 2B	Reasonably Anticipated	A3	X	A3

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens

A1 - Confirmed Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Confirmed Animal Carcinogen

A4 - Not Classifiable as a Human Carcinogen

A5 - Not Suspected as a Human Carcinogen

(g) reproductive toxicity; Category 1B

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 1

Target Organs Blood.

(j) aspiration hazard; No data available

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Other Adverse Effects The toxicological properties have not been fully investigated.

Endocrine Disrupting Properties This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nitrobenzene	EC50: 36 - 88.8 mg/L, 72h static (Pseudokirchneriella subcapitata) EC50: = 44.1 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: 3.45 - 38.13 mg/L, 96h static (Pseudokirchneriella subcapitata)	LC50: 121 - 150 mg/L, 96h semi-static (Poecilia reticulata) LC50: 36 - 49 mg/L, 96h static (Lepomis macrochirus) LC50: 40.49 - 47.51 mg/L, 96h flow-through (Pimephales promelas) LC50: = 92.2 mg/L, 96h (Brachydanio rerio)	EC50 = 18 mg/L 15 min EC50 = 34.67 mg/L 30 min EC50 = 98 mg/L 24 h	EC50: = 33 mg/L, 48h (Daphnia magna) EC50: 25.6 - 42 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Nitrobenzene	1.86

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Nitrobenzene - 98-95-3	U169	-

14. Transport information

DOT

UN-No UN1662
Proper Shipping Name NITROBENZENE
Hazard Class 6.1
Packing Group II

TDG

UN-No UN1662
Proper Shipping Name NITROBENZENE
Hazard Class 6.1
Packing Group II

IATA

UN-No UN1662
Proper Shipping Name NITROBENZENE

Hazard Class	6.1
Packing Group	II
IMDG/IMO	
UN-No	UN1662
Proper Shipping Name	NITROBENZENE
Hazard Class	6.1
Packing Group	II

15. Regulatory Information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Nitrobenzene	98-95-3	X	ACTIVE	-

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Nitrobenzene	98-95-3	X	-	202-716-0	X	X	X	X	X	KE-25965

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting thresholds
Nitrobenzene	98-95-3	99	0.1 %	-

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitrobenzene	X	1000 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nitrobenzene	X		-

OSHA - Occupational Safety and Health Administration

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Nitrobenzene	1000 lb	1000 lb	1000 lb 454 kg

California Proposition 65

This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Nitrobenzene	98-95-3	Carcinogen Male Reproductive	-	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nitrobenzene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant Y
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Nitrobenzene	Theft STQs - 100lb

Other International Regulations**Mexico - Grade**

No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Nitrobenzene	98-95-3	-	Use restricted. See entry 30. (see link for restriction details) Use restricted. See entry 75. (see link for restriction details)	SVHC Candidate list - 202-716-0 - Toxic for reproduction (Article 57c)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links

<https://echa.europa.eu/authorisation-list>

<https://echa.europa.eu/substances-restricted-under-reach>

<https://echa.europa.eu/candidate-list-table>

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Nitrobenzene	98-95-3	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Nitrobenzene	98-95-3	Not applicable	Not applicable	Not applicable	Not applicable

16. Other Information

Prepared By

Product stewardship (Regulatory Affairs)
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Revision Summary

Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS