

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

1 Identification of substance:

Product details:

Product name: Nitrobenzene-d(5)

Stock number: 42337

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Nitrobenzene-d(5) (CAS# 4165-60-0), 100%

Identification number(s):

EINECS Number: 224-014-3

3 Hazards identification

Hazard description:



T Toxic
N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 62 Possible risk of impaired fertility
R 23/24/25 Also toxic by inhalation, in contact with skin and if swallowed.
R 40 Limited evidence of a carcinogenic effect.
R 48/23/24 Also toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2
Flammability = 1
Reactivity = 1

GHS label elements



Danger

3.1/2 - Fatal if swallowed.
3.1/2 - Fatal in contact with skin.
3.1/2 - Fatal if inhaled.



Danger

3.9/1 - Causes damage to organs through prolonged or repeated exposure.
3.6/2 - Suspected of causing cancer.
3.7/2 - Suspected of damaging fertility or the unborn child.

Warning

2.6/4 - Combustible liquid.



4.1/2 - Toxic to aquatic life with long lasting effects.

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

Product name: Nitrobenzene-d(5)

(Contd. of page 1)

Prevention:

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Do not breathe dust/fume/gas/mist/vapours/spray.
 Do not get in eyes, on skin, or on clothing.
 Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Use only outdoors or in a well-ventilated area.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection/face protection.
 Use personal protective equipment as required.
 Wear respiratory protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 IF ON SKIN: Gently wash with plenty of soap and water.
 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
 IF exposed or concerned: Get medical advice/attention.
 Immediately call a POISON CENTER or doctor/physician.
 Get medical advice/attention if you feel unwell.
 Specific treatment is urgent (see label).
 Specific treatment (see label).
 Specific measures (see label).
 Rinse mouth.
 Remove/Take off immediately all contaminated clothing.
 Wash contaminated clothing before reuse.
 In case of fire: Use for extinction: CO₂, powder or water spray.
 Collect spillage.

Storage:

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

Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.
 Remove breathing apparatus only after contaminated clothing has been completely removed.
 In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.
 Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.
 Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.
 Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Nitrogen oxides (NO_x)

Protective equipment:

Wear self-contained respirator.
 Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.
 Ensure adequate ventilation

(Contd. on page 3)

- USA -

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

Product name: Nitrobenzene-d(5)

(Contd. of page 2)

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: Keep ignition sources away.**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from reducing agents.

Do not store together with alkalies (caustic solutions).

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

nitrobenzene (CAS# 98-95-3)

ppm

ACGIH TLV	1; A3 (skin)
Belgium TWA	1 (skin)
Denmark TWA	1 (skin)
Finland TWA	1; 3-STEEL (skin)
France TWA	1 (skin)
Germany TWA	1 (skin)
Hungary TWA	0.6; 1.2-STEEL (skin)
Ireland TWA	1; 2-STEEL (skin)
Netherlands TWA	1 (skin)
Poland TWA	0.6 (skin)
Russia TWA	1 (skin)
Sweden TWA	1; 2-STEEL (skin)
Switzerland TWA	1; 2-STEEL (skin)
United Kingdom TWA	1 (skin)
USA PEL	1 (skin)

Components with limit values that require monitoring at the workplace:**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:** Impervious gloves**Eye protection:** Safety glasses

(Contd. on page 4)

- USA -

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

Product name: Nitrobenzene-d(5)

(Contd. of page 3)

Body protection: Protective work clothing.

9 Physical and chemical properties:

General Information

Form:	Liquid
Color:	Yellow
Odor:	Not determined

Change in condition

Melting point/Melting range:	6°C (43°F)
Boiling point/Boiling range:	211°C (412°F)
Sublimation temperature / start:	Not determined

Flash point:	88°C (190°F)
---------------------	--------------

Ignition temperature:	Not determined
------------------------------	----------------

Decomposition temperature:	Not determined
-----------------------------------	----------------

Danger of explosion:	Product does not present an explosion hazard.
-----------------------------	---

Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure:	Not determined
------------------------	----------------

Density at 20°C (68°F):	1.25 g/cm³
--------------------------------	------------

Solubility in / Miscibility with Water:	Fully miscible
--	----------------

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Oxidizing agents

Reducing agents

Bases

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide

Nitrogen oxides

11 Toxicological information

Acute toxicity:

LD/LC50 values that are relevant for classification:

nitrobenzene (CAS# 98-95-3)

Oral: LD50: 349 mg/kg (rat)

LD50: 590 mg/kg (mus)

LD50: 500 mg/kg (mam)

LDLo: 1 g/kg (cat)

LDLo: 700 mg/kg (rbt)

Inhalation: LC50: 556 ppm/4H (rat)

LC50: 2 g/m³ (mam)

Dermal: LD50: 2100 mg/kg (rat)

LDLo: 480 mg/kg (mus)

LDLo: 25 g/kg (cat)

LDLo: 600 mg/kg (rbt)

Standard Draize test: Eye-mild: 500 mg/24H (rbt)

Skin-mild: 500 mg/24H (rbt)

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.

Other information (about experimental toxicology):

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Tumorigenic effects have been observed on tests with laboratory animals.

(Contd. on page 5)

USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

Product name: Nitrobenzene-d(5)

(Contd. of page 4)

Subacute to chronic toxicity:

Absorption into the body may lead to the formation of methemoglobin, producing cyanosis, and marked fall in blood pressure leading to collapse, coma and possibly death. Onset may be delayed 2-4 hours or longer.

Additional toxicological information:

Danger through skin absorption.

Possible risk of impaired fertility.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

12 Ecological information:**Ecotoxicological effects:**

Remark: Toxic for fish

General notes:

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Toxic for aquatic organisms

13 Disposal considerations**Product:**

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information**DOT regulations:**

Hazard class:

6.1

Identification number:

UN1662

Packing group:

II

Proper shipping name (technical name): NITROBENZENE

Label

6.1

Land transport ADR/RID (cross-border)

ADR/RID class:

6.1 (T1) Toxic substances

Danger code (Kemler):

60

UN-Number:

1662

Packaging group:

II

(Contd. on page 6)

USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

Product name: Nitrobenzene-d(5)

(Contd. of page 5)

Description of goods: 1662 NITROBENZENE

Maritime transport IMDG:

IMDG Class: 6.1
 UN Number: 1662
 Label: 6.1
 Packaging group: II
 Proper shipping name: NITROBENZENE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
 UN/ID Number: 1662
 Label: 6.1
 Packaging group: II
 Proper shipping name: NITROBENZENE

UN "Model Regulation": UN1662, NITROBENZENE, 6.1, II

Environmental hazards: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID

15 Regulations

Product related hazard informations:**Hazard symbols:**

T Toxic

N Dangerous for the environment

Risk phrases:

62 Possible risk of impaired fertility
 23/24/25 Also toxic by inhalation, in contact with skin and if swallowed.
 40 Limited evidence of a carcinogenic effect.
 48/23/24 Also toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin.
 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

28 After contact with skin, wash immediately with plenty of water
 36/37 Wear suitable protective clothing and gloves.
 45 In case of accident or if you feel unwell, seek medical advice immediately.
 61 Avoid release to the environment. Refer to special instructions/Safety data sheets

National regulations

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

(Contd. on page 7)

-USA-

Material Safety Data Sheet
acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

Product name: Nitrobenzene-d(5)

(Contd. of page 6)

Contact: Zachariah Holt**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

USA