



MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 02/04/2013

Version 1.0

SECTION 1. Identification

Product identifier

Product number 820846
Product name Naphthalene for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses Chemical for synthesis

Details of the supplier of the safety data sheet

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United States of America | SDS Phone Support: +1-978-715-1335 |
General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to
4:00 PM Eastern Time (GMT-5)

e-mail: mm_sds@merckgroup.com

Emergency telephone 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable solid, Category 2, H228
Carcinogenicity, Category 2, H351
Acute toxicity, Category 4, Oral, H302
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word
Warning

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Hazard Statements

H228 Flammable solid
H302 Harmful if swallowed.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P370 + P378 In case of fire: Use sand for extinction.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	C ₁₀ H ₈ (Hill)
CAS-No.	91-20-3
Molar mass	128.17 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

Naphthalene (>= 90 % - <= 100 %)

91-20-3

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Call in physician.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Call a physician immediately.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

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irritant effects, respiratory paralysis, Stomach/intestinal disorders, Headache, Convulsions, Tremors
Risk of corneal clouding.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Water, Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible material

Development of hazardous combustion gases or vapors possible in the event of fire.

Forms explosive mixtures with air on intense heating.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Suppress (knock down) gases/vapors/mists with a water spray jet.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Avoid generation of dusts; do not inhale dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

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Temperature class

T1

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep away from heat and sources of ignition.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>Naphthalene 91-20-3</i>			
ACGIH	Time Weighted Average (TWA):	10 ppm	Can be absorbed through the skin.
	Short Term Exposure Limit (STEL):	15 ppm	
	Skin designation:		
NIOSH/GUIDE	Recommended exposure limit (REL):	10 ppm 50 mg/m ³	
	Short Term Exposure Limit (STEL):	15 ppm 75 mg/m ³	
OSHA_TRANS	PEL:	10 ppm 50 mg/m ³	
Z1A	Time Weighted Average (TWA):	10 ppm 50 mg/m ³	
	Short Term Exposure Limit (STEL):	15 ppm 75 mg/m ³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

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Other protective equipment:
protective clothing

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	solid
Color	white
Odor	characteristic
Odor Threshold	0.015 ppm
pH	No information available.
Melting point	79 - 82 °C
Boiling point/boiling range	424 °F (218 °C)
Flash point	176 °F (80 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 2.
Lower explosion limit	0.9 %(V)
Upper explosion limit	5.9 %(V)
Vapor pressure	0.08 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	1.15 g/cm ³ at 68 °F (20 °C)
Water solubility	0.03 g/l at 77 °F (25 °C)
Partition coefficient: n-octanol/water	log Pow: 3.30 (20 °C) OECD Test Guideline 107 Bioaccumulation is not expected (log Pow <1).

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Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Ignition temperature	1004 °F (540 °C)
Minimum ignition energy	< 1 mJ
Dust explosion constant	178 b*m/s
Bulk density	ca. 550 - 600 mg/m ³

SECTION 10. Stability and reactivity

Reactivity

Forms explosive mixtures with air on intense heating.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Violent reactions possible with:

Oxidizing agents, chromium(VI) oxide

Risk of explosion with:

nitrogen oxides

Conditions to avoid

Strong heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Incompatible materials

no information available

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Target Organs

Eyes

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Skin
Blood
Liver
Kidneys
Central nervous system

Acute oral toxicity

LD50 rat: > 2,000 mg/kg
OECD Test Guideline 401

absorption

Acute inhalation toxicity

LC50 rat: > 100 mg/l; 4 h (External MSDS)
Symptoms: Irritation symptoms in the respiratory tract.

Acute dermal toxicity

LD50 rat: > 2,500 mg/kg
(IUCLID)
Symptoms: Dermatitis
absorption

Eye irritation

slight irritation Risk of corneal clouding.

Genotoxicity in vitro

Ames test
Salmonella typhimurium
Result: negative
(National Toxicology Program)

CMR effects

Carcinogenicity:
Suspected of causing cancer.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 2B: Possibly carcinogenic to humans Naphthalene 91-20-3
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	Anticipated carcinogen. Naphthalene 91-20-3

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ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Systemic effects:

Headache, Stomach/intestinal disorders, Tremors, Convulsions, respiratory paralysis, Changes in the blood count

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 1.99 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 2.19 mg/l; 48 h (ECOTOX Database)

Persistence and degradability

Biodegradability

Not readily eliminated from water.

Theoretical oxygen demand (ThOD)

2,990 mg/g

(Lit.)

Ratio BOD/ThBOD

BOD5 0 %

(Lit.)

Ratio COD/ThBOD

22 %

(Lit.)

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 3.30 (20 °C)

OECD Test Guideline 107

Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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SECTION 14. Transport information

Land transport (DOT)

UN number UN 1334
Proper shipping name NAPHTHALENE, REFINED
Class 4.1
Packing group III
Environmentally hazardous --

Air transport (IATA)

UN number UN 1334
Proper shipping name NAPHTHALENE, REFINED
Class 4.1
Packing group III
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 1334
Proper shipping name NAPHTHALENE, REFINED
Class 4.1
Packing group III
Environmentally hazardous --
Special precautions for user yes
EmS F-A S-G

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Combustible dust
Flammable Solid
Carcinogen
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Chronic Health Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients
Naphthalene

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SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients

Naphthalene

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients

Naphthalene

Massachusetts Right To Know

Ingredients

Naphthalene

Pennsylvania Right To Know

Ingredients

Naphthalene

New Jersey Right To Know

Ingredients

Naphthalene

Notification status

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H228	Flammable solid
H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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