



# MATERIAL SAFETY DATA SHEET

according to the Global Harmonized System

Date of issue: 02/11/2013

Version 1.0

## SECTION 1. Identification

### Product identifier

Product number 806838  
Product name n-Nonane 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

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,  
United States of America | SDS Phone Support: +1-978-715-1335 |  
General Inquiries: +1-978-751-4321 | Monday to Friday, 9:00 AM to  
4:00 PM Eastern Time (GMT-5)

Emergency telephone 613-996-6666 CANUTEC (Canada)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 3, H226  
Aspiration hazard, Category 1, H304

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

### GHS-Labeling

#### Hazard pictograms



Signal Word  
Danger

#### Hazard Statements

H226 Flammable liquid and vapor.  
H304 May be fatal if swallowed and enters airways.

#### Precautionary Statements

P210 Keep away from heat.  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
P331 Do NOT induce vomiting.

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**Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

Formula	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> CH <sub>3</sub>	C <sub>9</sub> H <sub>20</sub> (Hill)
CAS-No.	111-84-2	
Molar mass	128.25 g/mol	

**Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

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

111-84-2

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**SECTION 4. First aid measures**

**Description of first-aid measures**

*Inhalation*

After inhalation: fresh air.

*Skin contact*

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

*Eye contact*

After eye contact: rinse out with plenty of water.

*Ingestion*

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**

irritant effects, Dermatitis

Drying-out effect resulting in rough and chapped skin.

**Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5. Fire-fighting measures**

**Extinguishing media**

*Suitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), 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, Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

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

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**Advice for firefighters**

*Special protective equipment for fire-fighters*

In the event of fire, wear self-contained breathing apparatus.

*Further information*

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

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**SECTION 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. 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. Risk of explosion.

**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 with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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**SECTION 7. Handling and storage**

**Precautions for safe handling**

Observe label precautions.

*Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

**Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

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

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**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

*Ingredients*

Basis	Value	Threshold limits	Remarks
<i>nonane 111-84-2</i>			
CAD AB OEL	Time Weighted Average (TWA):	200 ppm 1,050 mg/m <sup>3</sup>	
CAD BC OEL	Time Weighted Average (TWA):	200 ppm	
CAD MB OEL	Time Weighted Average (TWA):	200 ppm	
CAD ON OEL	Time Weighted Average (TWA):	200 ppm	
OEL (QUE)	Time Weighted Average (TWA):	200 ppm 1,050 mg/m <sup>3</sup>	

**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.

*Other protective equipment:*

Flame retardant antistatic protective clothing

*Respiratory protection*

required when vapors/aerosols 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.

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**SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	colorless

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Odor	characteristic
Odor Threshold	No information available.
pH	No information available.
Melting point	-53 °C
Boiling point/boiling range	304 °F (151 °C)
Flash point	88 °F (31 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	0.7 %(V)
Upper explosion limit	5.6 %(V)
Vapor pressure	5 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	0.72 g/cm <sup>3</sup> at 68 °F (20 °C)
Water solubility	at 68 °F (20 °C) insoluble
Partition coefficient: n-octanol/water	log Pow: 4.76 (calculated) (Lit.) A remarkable bioaccumulation potential is expected (log Po/w >3).
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	1 mPa.s at 68 °F (20 °C)
Explosive properties	No information available.
Ignition temperature	401 °F (205 °C)
Viscosity, kinematic	< 7 mm <sup>2</sup> /s at 104 °F (40 °C)

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**SECTION 10. Stability and reactivity**

**Reactivity**

Vapor/air-mixtures are explosive at intense warming.

**Chemical stability**

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

**Possibility of hazardous reactions**

Strong oxidizing agents

Violent reactions possible with:

**Conditions to avoid**

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

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**SECTION 11. Toxicological information**

**Information on toxicological effects**

*Likely route of exposure*

Inhalation, Eye contact, Skin contact

*Acute oral toxicity*

Symptoms: Aspiration may cause pulmonary edema and pneumonitis., Pulmonary failure possible after aspiration of vomit.

*Acute inhalation toxicity*

LC50 rat: 17 mg/l; 4 h (RTECS)

Symptoms: mucosal irritations

*Skin irritation*

Drying-out effect resulting in rough and chapped skin. Dermatitis

*Eye irritation*

slight irritation

*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*

Aspiration hazard, Aspiration may cause pulmonary edema and pneumonitis.

**Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed

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OSHA	human carcinogen by IARC. 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	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
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**

Other information

It generally applies for aliphatic hydrocarbons with 6 - 18 carbon atoms that they may cause pneumonia, in some cases also pulmonary oedema, upon direct inhalation, i.e. in conditions that can occur only in very special circumstances (nebulizations, spraying, inhalation of aerosols and similar). After absorption of very large quantities: narcosis.

Further data:

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12. Ecological information**

**Ecotoxicity**

No information available.

**Persistence and degradability**

No information available.

**Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: 4.76

(calculated)

(Lit.) A remarkable bioaccumulation potential is expected (log Po/w >3).

**Mobility in soil**

No information available.

**Other adverse effects**

*Additional ecological information*

We have no quantitative data concerning the ecological effects of this product.

Further information on ecology

Discharge into the environment must be avoided.

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**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 1920
Proper shipping name	NONANES
Class	3
Packing group	III
Environmentally hazardous	--

**Air transport (IATA)**

UN number	UN 1920
Proper shipping name	NONANES
Class	3
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

**Sea transport (IMDG)**

UN number	UN 1920
Proper shipping name	NONANES
Class	3
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-E

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**SECTION 15. Regulatory information**

**TSCA 12b**

*Ingredients*

nonane 111-84-2

**Canada**

**WHMIS Classification**

B2 Flammable Liquid

Flammable Liquid

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.



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**Notification status**

TSCA: On TSCA Inventory

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

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**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.**

H226 Flammable liquid and vapor.  
H304 May be fatal if swallowed and enters airways.

**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](http://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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