

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 12/20/2007

Reviewed on 11/09/2007

**1 Identification of substance:****Product details:****Product name:** n-Nonane**Stock number:**

A16177

L03008

**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#)**

n-nonane (CAS# 111-84-2): 100%

**Identification number(s):****EINECS Number:** 203-913-4**3 Hazards identification****Hazard description:**

Xi Irritant

**Information pertaining to particular dangers for man and environment**

R 10 Flammable.

R 36/37/38 Irritating to eyes, respiratory system and skin.

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	1
FIRE	3
REACTIVITY	1

Health (acute effects) = 1

Flammability = 3

Reactivity = 1

**4 First aid measures****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.

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**After eye contact**

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

**After swallowing** 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

**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

Keep away from ignition sources

**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.

Do not flush with water or aqueous cleansing agents

Keep away from ignition sources.

**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.

**Information about protection against explosions and fires:**

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

**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.

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**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:**

n-Nonane

	ppm
ACGIH TLV	200
Denmark TWA	200
Finland TWA	200
France VME	200
Japan OEL	200
Korea TLV	200
Netherlands MAC-TGG	0.05 (skin)
Norway TWA	100
Sweden NGV	150; 200-KTV
Switzerland MAK-W	200
United Kingdom TWA	0.1 mg(Sn)/m <sup>3</sup> ; 0.2 mg(Sn)/m <sup>3</sup> (skin)

**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.

**Breathing equipment:**

Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Light

**Change in condition**

<b>Melting point/Melting range:</b>	-54°C (-65°F)
<b>Boiling point/Boiling range:</b>	151°C (304°F)
<b>Sublimation temperature / start:</b>	Not determined

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<b>Flash point:</b>	31°C (88°F)
<b>Ignition temperature:</b>	205°C (401°F)
<b>Decomposition temperature:</b>	Not determined
<b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
<b>Explosion limits:</b>	
<b>Lower:</b>	0.7 Vol %
<b>Upper:</b>	5.6 Vol %
<b>Vapor pressure at 20°C (68°F):</b>	4.7 hPa (4 mm Hg)
<b>Density at 20°C (68°F):</b>	0.718 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with Water:</b>	Not miscible or difficult to mix

**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

**Dangerous reactions** No dangerous reactions known

**Dangerous products of decomposition:** Carbon monoxide and carbon dioxide

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Inhalative	LC50/4H	3200 ppm/4H (rat)
Irritation of skin	mild	250 µL/24H (pig)

**Primary irritant effect:**

**on the skin:** Irritant to skin and mucous membranes.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Endocrine - changes in adrenal weight.

Related to Chronic Data - changes in ovarian weight.

Related to Chronic Data - death.

Gastrointestinal - changes in structure or function of salivary glands.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Liver - changes in liver weight.

Kidney, Ureter, Bladder - changes in kidney weight.

Sense Organs and Special Senses (Eye) - conjunctive irritation.

Behavioral - tremor.

Behavioral - ataxia.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - phosphatases.

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Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other oxidoreductases.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other transferases.

**Subacute to chronic toxicity:**

Nonane is irritating to the eyes, mucous membranes and upper respiratory tract. Exposure may cause narcosis. May cause central nervous system damage. Skin contact may cause dermatitis.

**Additional toxicological information:**

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

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**12 Ecological information:****General notes:**

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

**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.

**14 Transport information****DOT regulations:**

**Hazard class:** 3  
**Identification number:** UN1920  
**Packing group:** III  
**Proper shipping name (technical name):** NONANES  
**Label:** 3

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** 3 (F1) Flammable liquids  
**Danger code (Kemler):** 30  
**UN-Number:** 1920  
**Packaging group:** III

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**Product name: n-Nonane**

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**Description of goods:** 1920 NONANES**Maritime transport IMDG:**

**IMDG Class:** 3  
**UN Number:** 1920  
**Label** 3  
**Packaging group:** III  
**Proper shipping name:** NONANES

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 3  
**UN/ID Number:** 1920  
**Label** 3  
**Packaging group:** III  
**Proper shipping name:** NONANES

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

Xi Irritant

**Risk phrases:**

10 Flammable.  
 36/37/38 Irritating to eyes, respiratory system and skin.

**Safety phrases:**

23 Do not breathe gas/fumes/vapour/spray.  
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 37 Wear suitable gloves.

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

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 substance is subject to a Significant New Use Rule (SNUR) promulgated under Section 5(a)(2) of the Toxic Substances Control Act (TSCA). See 40 CFR 721. This product is being sold for research and development use only for the significant new use listed.

USA

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**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.

**Contact:** Paul V. Connolly

USA