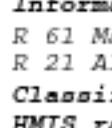


Material Safety Data Sheet
acc. to OSHA and ANSI

Printing date 11/11/2008

Reviewed on 05/30/2008

1 Identification of substance:**Product details:****Product name:** *N*-Methylformamide
Stock number: L03908**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 characterisation:****Description:** (CAS#)
N-Methylformamide (CAS# 123-39-7): 100%
Identification number(s):
EINECS Number: 204-624-6
Index number: 616-056-00-X**3 Hazards identification****Hazard description:**

T Toxic

Information pertaining to particular dangers for man and environmentR 61 May cause harm to the unborn child
R 21 Also harmful in contact with skin.**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

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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Product name: *N*-Methylformamide

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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

Nitrogen oxides (NOx)

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

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.

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.

Further information about storage conditions:

Keep container tightly sealed.

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Product name: *N*-Methylformamide

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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:

Not required.

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

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**

Form:	Liquid
Color:	Colorless
	Pale yellow
Odor:	Not determined

Change in condition**Melting point/Melting range:** -4°C (25°F)**Boiling point/Boiling range:** 199-201°C (390-394°F)**Sublimation temperature / start:** Not determined**Flash point:** 111°C (232°F)**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:****Lower:** Not determined

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Product name: *N*-Methylformamide

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Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68°F):	1.003 g/cm ³
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**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:**

Oral	LD50	2700 mg/kg (rat)
Dermal	LD50	2000 mg/kg (rat)
Inhalative	LC50/4H	>4100 mg/m3/4H (rat)

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.

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

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

Sense Organs and Special Senses (Eye)- corneal damage.

Behavioral - somnolence (general depressed activity).

Behavioral - food intake (animal).

Musculoskeletal - other changes.

Lungs, Thorax, or Respiration - respiratory depression

Lung, Thorax, or Respiration - changes in lung weight.

Blood - changes in leukocyte (WBC) count.

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

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

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

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

Liver - hepatitis (hepatocellular necrosis), zonal

Endocrine - other changes.

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Related to Chronic Data - death.
Nutritional and Gross Metabolic - weight loss or decreased weight gain.
Nutritional and Gross Metabolic - changes in chlorine.
Nutritional and Gross Metabolic - body temperature decrease.
Reproductive - Fertility - post-implantation mortality (e.g. dead/or resorbed implants per total number of implants)
Reproductive - Specific Developmental Abnormalities - homeostasis.
Reproductive - Specific Developmental Abnormalities - other developmental abnormalities.
Reproductive - Maternal Effects - other effects.
Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).
Reproductive - Effects on Embryo or Fetus - fetal death.
Reproductive - Specific Developmental Abnormalities - Central Nervous System.
Reproductive - Specific Developmental Abnormalities - musculoskeletal system.
Reproductive - Specific Developmental Abnormalities - body wall.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
Danger through skin absorption.
May cause harm to the unborn child.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.**12 Ecological information:****General notes:**

All not allow product to reach ground water, water course or sewage system.

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

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.**Recommended cleansing agent:** Water, if necessary with cleansing agents.**14 Transport information**

Not a hazardous material for transportation.

DOT regulations:**Hazard class:** None**Land transport ADR/RID (cross-border)****ADR/RID class:** None

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Product name: *N*-Methylformamide

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Maritime transport IMDG:**IMDG Class:** None**Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** None**15 Regulations****Product related hazard informations:****Hazard symbols:**

T Toxic

Risk phrases:

61 May cause harm to the unborn child

21 Also harmful in contact with skin.

Safety phrases:

53 Avoid exposure - obtain special instructions before use.

45 In case of accident or if you feel unwell, seek medical advice immediately.

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.

16 Other information:

Employees 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

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