

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/01/2009

Reviewed on 11/30/2009

1 Identification of substance:**Product details:****Product name:** 4-Methyl-2-pentanone**Stock number:** 33346**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#)**

4-Methyl-2-pentanone (CAS# 108-10-1)

Identification number(s):**EINECS Number:** 203-550-1**Index number:** 606-004-00-4**3 Hazards identification****Hazard description:**

Xn Harmful
 F Highly flammable

Information pertaining to particular dangers for man and environment

At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.

R 11 Highly flammable.

R 20 Harmful by inhalation.

R 36/37 Irritating to eyes and respiratory system.

R 66 Repeated exposure may cause skin dryness or cracking

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

GHS label elements**Danger**

2.6/2 - Highly flammable liquid and vapour.

**Warning**

3.1/4 - Harmful if inhaled.

3.3/2A - Causes serious eye irritation.

3.8/3 - May cause respiratory irritation.

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Take precautionary measures against static discharge.

Response:

Call a POISON CENTER or doctor/physician if you feel unwell.

Storage:

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

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Disposal:

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

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.

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 CO2, sand, extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents Water

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.

Ensure adequate ventilation.

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: Store in a cool location.

Information about storage in one common storage facility: Store away from oxidizing agents.

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.

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Components with limit values that require monitoring at the workplace:

Methyl isobutyl ketone (4-Methyl-2-pentanone)

	ppm
ACGIH TLV	50
Austria MAK	100
Denmark TWA	25 (skin)
France VME	50
Japan OEL	50 (skin)
Netherlands MAC-TGG	25; 50-MAC-K
Norway TWA	25
Poland TWA	200 mg/m ³ ; 300 mg/m ³ -STEL
Sweden NGV	25; 50-KTV
OSHA PEL	100

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.

Avoid contact with the eyes.

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
Odor:	Like ketone

Change in condition

Melting point/Melting range:	-83°C (-117°F)
Boiling point/Boiling range:	117-118°C (243-244°F)
Sublimation temperature / start:	Not determined

Flash point: 13°C (55°F)**Ignition temperature:** 460°C (860°F)**Decomposition temperature:** Not determined**Explosion limits:**

Lower:	1.2 Vol %
Upper:	8 Vol %

Vapor pressure at 20°C (68°F): 20 hPa (15 mm Hg)**Density at 20°C (68°F):** 0.8 g/cm³**Solubility in / Miscibility with****Water at 20°C (68°F):** 19 g/l**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

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

Oral	LD50	1900 mg/kg (mouse) 2080 mg/kg (rat)
Dermal	LD50	>3 gm/kg (rabbit)
Inhalative	LC50/4H	8200-16400 mg/m ³ /4H (rat)
Irritation of skin	mild	500 mg/24H (rabbit)

Primary irritant effect:**on the skin:** May cause irritation**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:**

4-Methyl-2-pentanone (methyl isobutyl ketone) is moderately toxic by ingestion and is irritating to the skin, eyes and mucous membranes. It is narcotic in high concentrations. Animal studies have shown convulsions, kidney, ureter, bladder and liver effects from exposure.

Subacute to chronic toxicity:

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

Behavioral - convulsions or effect on seizure threshold.

Related to Chronic Data - death.

Liver - changes in liver weight.

Kidney, Ureter, Bladder - changes in bladder weight.

Kidney, Ureter, Bladder - other changes in urine composition.

Kidney, Ureter, Bladder - other changes.

Endocrine - changes in adrenal weight.

Brain and Coverings - recordings from specific areas of CNS.

Nutritional and Gross Metabolic - body temperature decrease.

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

Blood - changes in serum composition.

Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

Reproductive - Specific Developmental Abnormalities - musculoskeletal system.

Reproductive - Effects on Embryo or Fetus - fetal death.

Reproductive - Specific Developmental Abnormalities - Central Nervous System.

Reproductive - Specific Developmental Abnormalities - cardiovascular (circulatory) system.

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 undiluted product or large quantities of it to reach ground water, water course or sewage system.

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:

UN1245

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Product name: 4-Methyl-2-pentanone

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Packing group: II
Hazardous substance: 5000 lbs, 2270 kg
Proper shipping name (technical name): METHYL ISOBUTYL KETONE
Label 3

Land transport ADR/RID (cross-border)

ADR/RID class: 3 (F1) Flammable liquids
Danger code (Kemler): 33
UN-Number: 1245
Packaging group: II
Description of goods: 1245 METHYL ISOBUTYL KETONE

Maritime transport IMDG:

IMDG Class: 3
UN Number: 1245
Label 3
Packaging group: II
EMS Number: F-E, S-D
Marine pollutant: No
Proper shipping name: METHYL ISOBUTYL KETONE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 1245
Label 3
Packaging group: II
Proper shipping name: METHYL ISOBUTYL KETONE

UN "Model Regulation": UN1245, METHYL ISOBUTYL KETONE, 3, II

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

Xn Harmful
 F Highly flammable

Risk phrases:

11 Highly flammable.
 20 Harmful by inhalation.
 36/37 Irritating to eyes and respiratory system.
 66 Repeated exposure may cause skin dryness or cracking

Safety phrases:

9 Keep container in a well-ventilated place.
 16 Keep away from sources of ignition - No smoking.
 29 Do not empty into drains.

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.

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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.

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.

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)

HMSIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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