



SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 03/31/2005
Date Updated: 05/24/2004
Version 1.50

Section 1 - Product and Company Information

Product Name: Cyclohexanone, ReagentPlus™, 99.8%
Product Number: C102180
Brand: Aldrich Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052
Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
CYCLOHEXANONE	108-94-1	No	203-631-1	606-010-00-7
Formula	C6H10O			
Synonyms	Anone, Cyclohexanone (Italian), Cyclohexanon (Dutch), Cyclohexanonone (ACGIH:OSHA), Cyclohexyl ketone, Cyclohexanon (Polish), Hexanon, Hytol O, Ketohexamethylene, Nadone, NCI-C55005, Pimelic ketone, Pimelin ketone, RCRA waste number U057, Sextone			

Section 3 - Hazards Identification

Emergency Overview
Combustible (USA) Flammable (EU). Harmful.
Harmful by inhalation, in contact with skin and if swallowed. Irritating to respiratory system. Risk of serious damage to eyes.
Readily absorbed through skin. Target organ(s): Liver. Kidneys.

HMIS Rating	Health: 2*	Flammability: 2	Reactivity: 0
NFPA Rating	Health: 2	Flammability: 2	Reactivity: 0

*additional chronic hazards present.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

Flammable Hazards: Yes
Flash Point: 111.2 °F 44 °C
Explosion Limits: Lower: 1.1 % Upper: 9.4 %
Autoignition Temp: 420 °C Flammability: Yes
Extinguishing Media: Suitable
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s)
Emits toxic fumes under fire conditions. Combustible liquid.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill
Evacuate area.

Procedure(s) of Personal Precaution(s)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure
Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Storage

Suitable
Keep tightly closed. Keep away from heat and open flame.

Section 8 - Exposure Controls / PPE

Engineering Controls
Mechanical exhaust required. Safety shower and eye bath.

Personal Protective Equipment

Respiratory
Government approved respirator.
Hand
Compatible chemical-resistant gloves.
Eye
Chemical safety goggles.

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General Hygiene Measures
Wash thoroughly after handling.

Exposure Limits

Country	Type	Value
Poland	NDS	40 MG/M3
Poland	NDSch	80 MG/M3
Poland	NDSp	

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	25 PPM
USA	MSHA Standard-air	TWA	50 PPM (200 MG/M3)
USA	OSHA	PEL	8H TWA 50 PPM (200 MG/M3)
New Zealand	OEL		
USA	NIOSH	TWA	25 PPM (SK)

Remarks: check ACGIH TLV

Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color
	Clear liquid	Colorless

Molecular Weight: 98.15 AMU

pH	N/A
BP/BP Range	154 - 156 °C
MP/MP Range	-47 °C
Freezing Point	N/A
Vapor Pressure	10 mmHg
Vapor Density	3.4 g/l
Saturated Vapor Conc.	N/A
SG/Density	0.947 g/cm3
Bulk Density	N/A
Odor Threshold	0.88 ppm
Volatiles%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Surface Tension	35.05 mN/m
Partition Coefficient	Log Kow: 0.81
Decomposition Temp.	N/A
Flash Point °F	111.2 °F
Flash Point °C	44 °C
Explosion Limits	Lower: 1.1 % Upper: 9.4 %
Flammability	N/A
Autoignition Temp	420 °C
Refractive Index	1.45

Method: closed cup
Method: closed cup

Solubility

Solubility in Water: 50 mg/ml H2O
Other Solvents: SOLUBLE IN ACETONE, ETHANOL, ETHYL ETHER.

N/A = not available

Section 10 - Stability and Reactivity

Stability

Stable
Stable.

Materials to Avoid
Oxidizing agents, Plastics.

Hazardous Decomposition Products

Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide.

Hazardous Polymerization

Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure

Skin Contact

May cause skin irritation.

Skin Absorption

Harmful if absorbed through skin. Readily absorbed through skin.

Eye Contact

Causes severe eye irritation.

Inhalation

Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion

Harmful if swallowed.

Target Organ(s) or System(s)

Liver, Kidneys. Central nervous system. Lungs.

Signs and Symptoms of Exposure

Prolonged or repeated exposure to skin causes defatting and dermatitis. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause CNS depression. Incoordination. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: GW1050000

Toxicity Data

Oral - Rat: 1620 UL/KG (LD50)
Inhalation - Rat: 8,000 ppm (LC50)
Intraperitoneal - Rat: 1130 MG/KG (LD50)
Remarks: Gastrointestinal/Other changes.
Subcutaneous - Rat: 2170 MG/KG (LD50)
Oral - Mouse: 1400 mg/kg (LD50)
Intraperitoneal - Mouse: 1230 MG/KG (LD50)
Remarks: Gastrointestinal/Other changes.
Skin - Rabbit: 1 ML/KG (LD50)
Intraperitoneal - Rabbit: 1540 MG/KG (LD50)

Remarks: Gastrointestinal: Other changes.

Oral - Mammal: 3000 mg/kg (LD50)

Inhalation - Mammal: 25,000 mg/m³ (LC50)

Irritation Data

Eyes - Human: 75 ppm

Skin - Rabbit: 500 mg

Remarks: Open irritation test

Eyes - Rabbit: 20 mg

Remarks: Severe irritation effect

Eyes - Rabbit: 0.25 mg 24H

Remarks: Severe irritation effect

Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC Carcinogen List

Rating
Group 3

ACGIH Carcinogen List

Rating
A4

Chronic Exposure - Mutagen

Species Dose

Human 100 UMOL/L

Human 5 UG/L

Hamster 7500 UL/L

Hamster 7500 UL/L

Cell Type

leukocyte

lymphocyte

ovary

ovary

Mutation test

Cytogenetic analysis

Cytogenetic analysis

Sister chromatid exchange

Mutation in mammalian somatic cells.

Chronic Exposure - Reproductive Hazard

Species Dose

Rat 105 MG/M3/4H

Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Mouse 11 GM/KG

Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Mouse 1400 PPM/6H

Result: Maternal Effects: Other effects. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Section 12 - Ecological Information

Acute Ecotoxicity Tests

Test Type

EC50 Daphnia

Species

Daphnia magna

Time:

24.0 h

Value:

820 mg/l

Test Type

LC50 Fish

Species

Leuciscus idus

Time:

48.0 h

Value:

536 - 752 mg/l

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Test Type

LC50 Fish

Species

Pimephales promelas (Fathead minnow)

Time:

96.0 h

Value:

480 - 630 mg/l

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Cyclohexanone

UN#: 1915

Class: 3

Packing Group: Packing Group III

Hazard Label: Flammable liquid

PIH: Not PIH

IATA

Proper Shipping Name: Cyclohexanone

IATA UN Number: 1915

Hazard Class: 3

Packing Group: III

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: Xn

Indication of Danger: Harmful.

Risk Statements R: 10 20

Flammable. Harmful by inhalation.

Safety Statements S: 25

Avoid contact with eyes.

US Classification and Label Text

Indication of Danger

Combustible (USA) Flammable (EU). Harmful.

Risk Statements

Harmful by inhalation, in contact with skin and if swallowed. Irritating to respiratory system. Risk of serious damage to eyes.

Safety Statements

Keep away from sources of ignition - no smoking. Do not breathe vapor. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

US Statements

Readily absorbed through skin. Target organ(s): Liver, Kidneys.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information

WhMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

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DSL: Yes
NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.



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4/1/05

MSDS Address Confirmation

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US

Address Correction:

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Comments(if necessary):

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*I hereby certify that my organization meets all 29 CFR 1910.1200 OSHA HAZCOMM requirements by alternative means, electronic or otherwise, and do not require Sigma-Aldrich to send me a paper copy of MSDS' for any and all products ordered from Sigma-Aldrich Corporation.

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Print Safety Director Name: _____ Telephone : _____

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Please fax completed confirmation to our CMMG department at 877-380-2660 or 314-286-8083 or e-mail address changes to cmmg@sial.com.