

ACROS ORGANICS

Material Safety Data Sheet

Creation Date 06-Oct-2009

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Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Cyclohexane	
Cat No.	AC167740000; AC167740010; AC167740025; AC167745000	
Synonyms	Hexahydrobenzene; Benzene hexahydride; Hexamethylene.	
Recommended Use	Laboratory chemicals	
Company Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	Entity / Business Name Acros Organics One Reagent Lane Fair Lawn, NJ 07410	Emergency Telephone Number For information in the US, call: 800-ACROS-01 For information in Europe, call: +32 14 57 52 11 Emergency Number, Europe: +32 14 57 52 99 Emergency Number, US: 201-796-7100 CHEMTREC Phone Number, US: 800-424-9300 CHEMTREC Phone Number, Europe: 703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Extremely flammable liquid and vapor. Irritating to eyes and skin. Inhalation may cause central nervous system effects. May cause irritation of respiratory tract. Aspiration hazard if swallowed - can enter lungs and cause damage. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Appearance Colorless

Physical State Liquid

odor sweet

Target Organs

Central nervous system (CNS), Eyes, Skin, Respiratory system, Kidney, Liver, Cardiovascular system

Potential Health Effects

Acute Effects**Principle Routes of Exposure**

Eyes	Irritating to eyes.
Skin	Irritating to skin. May be harmful in contact with skin.
Inhalation	Inhalation may cause central nervous system effects. May be harmful if inhaled. May cause irritation of respiratory tract.
Ingestion	Aspiration hazard. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects

May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

Central nervous system disorders. Preexisting eye disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Cyclohexane	110-82-7	>95

4. FIRST AID MEASURES

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Get medical attention immediately if symptoms occur.

Ingestion

Do not induce vomiting. Obtain medical attention.

Notes to Physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point

-18°C / -0.4°F

Method

No information available.

Autoignition Temperature

260°C / 500°F

Explosion Limits**Upper**

8.0 vol %

Lower

1.3 vol %

Suitable Extinguishing MediaCO₂, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.**Unsuitable Extinguishing Media**

Water may be ineffective. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained..

Hazardous Combustion Products

No information available.

Sensitivity to mechanical impact
Sensitivity to static dischargeNo information available.
No information available.**Specific Hazards Arising from the Chemical**

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA**Health 1****Flammability 3****Instability 0****Physical hazards N/A****6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions

Should not be released into the environment.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE**Handling**

Use only under a chemical fume hood. Wear personal protective equipment. Ensure adequate ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Cyclohexane	TWA: 100 ppm	(Vacated) TWA: 300 ppm (Vacated) TWA: 1050 mg/m ³ TWA: 1050 mg/m ³ TWA: 300 ppm	IDLH: 1300 ppm TWA: 1050 mg/m ³ TWA: 300 ppm

Component	Quebec	Mexico OEL (TWA)	Ontario TWA/EV
Cyclohexane	TWA: 1030 mg/m ³ TWA: 300 ppm	TWA: 1050 mg/m ³ TWA: 300 ppm STEL: 375 ppm STEL: 1300 mg/m ³	TWA: 100 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
odor	sweet
Odor Threshold	No information available.
pH	No information available.
Vapor Pressure	104 mbar @ 20 °C
Vapor Density	2.90 (Air = 1.0)
Viscosity	0.94 mPa.s @ 20 °C
Boiling Point/Range	81°C / 177.8°F
Melting Point/Range	6.5°C / 43.7°F
Decomposition temperature °C	No information available.
Flash Point	-18°C / -0.4°F
Evaporation Rate	6.1 (Butyl Acetate = 1.0)
Specific Gravity	0.770
Solubility	Insoluble in water
log Pow	No data available
Molecular Weight	84.15
Molecular Formula	C6 H12

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	None under normal processing..

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cyclohexane	5000 mg/kg (Rat)	2000 mg/kg (Rabbit)	13.9 mg/L (Rat) 4 h

Irritation Irritating to eyes and skin

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization No information available.

Mutagenic Effects Mutagenic effects have occurred in microorganisms.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

Other Adverse Effects See actual entry in RTECS for complete information.

Endocrine Disruptor Information No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cyclohexane	EC50 >500 mg/L/72h	Not listed	EC50 = 85.5 mg/L 5 min EC50 = 93 mg/L 10 min	EC50 = 400.0 mg/L/48h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility .

Component	log Pow
Cyclohexane	3.44

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
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Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Cyclohexane - 110-82-7	U056	-

14. TRANSPORT INFORMATION

DOT

UN-No UN1145
Proper Shipping Name CYCLOHEXANE
Hazard Class 3
Packing Group II

TDG

UN-No UN1145
Proper Shipping Name CYCLOHEXANE
Hazard Class 3
Packing Group II

IATA

UN-No UN1145
Proper Shipping Name Cyclohexane
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1145
Proper Shipping Name Cyclohexane
Hazard Class 3
Packing Group II

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Cyclohexane	X	X	-	203-806-2	-		X	X	X	X	KE-18562 X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
 XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
 Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
 Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Cyclohexane	110-82-7	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard No
 Chronic Health Hazard No
 Fire Hazard Yes
 Sudden Release of Pressure Hazard No
 Reactive Hazard No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Cyclohexane	X	1000 lb	-	-

Clean Air Act

Not applicable

OSHA

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Cyclohexane	1000 lb	-

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cyclohexane	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

B2 Flammable liquid

D2B Toxic materials

**16. OTHER INFORMATION**

Prepared By	Regulatory Affairs Thermo Fisher Scientific Tel: (412) 490-8929
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Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS