



# Safety Data Sheet - Version 5.0

Preparation Date 11/21/2014

Latest Revision Date (If Revised)

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product Identifier

Chemical Name 2-Cyclohexen-1-one

Catalogue # C984495

### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

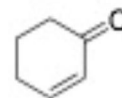
### 1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals  
2 Brisbane Road  
Toronto, ON M3J 2J8  
CANADA

Telephone +14166659696

FAX +14166654439

Email orders.trc@lgcgroup.com



### 1.4 Emergency Telephone Number

Emergency# +1(416) 665-9696 between 0800-1700 (GMT-5)

## 2. HAZARDS IDENTIFICATION

### 2.1/2.2 Classification of the Substance or Mixture and Label Elements

#### GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Flammable Liquids (Category 3)

Acute Toxicity, Oral (Category 3)

Acute Toxicity, Inhalation (Category 3)

Acute Toxicity, Dermal (Category 2)

#### GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Danger



#### GHS Hazard Statements

H226 Flammable liquid and vapour.

H301 Toxic if swallowed.

H331 Toxic if inhaled.

H310 Fatal in contact with skin.

#### GHS Precautionary Statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301/P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P304/P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P303/P361/P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

### 2.3 Unclassified Hazards/Hazards Not Otherwise Classified

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

**Molecular Formula:**  $C_6H_{10}O$

**Molecular Weight:** 96.13

**CAS Registry #:** 930-68-7

**EC#:** 213-223-5

#### Synonyms

1-Cyclohexen-3-one; 2-Cyclohexenone; 3-Oxocyclohexene; Cyclohexen-3-one; Cyclohexenone; NSC 59710

#### 3.2 Mixtures

Not a mixture

### 4. FIRST AID MEASURES

#### 4.1 Description of First Aid Measures

##### General Advice

If medical attention is required, show this safety data sheet to the doctor.

##### If Inhaled

If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

##### In Case of Skin Contact

Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

##### In Case of Eye Contact

Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

##### If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

#### 4.2 Most Important Symptoms and Effects, Both Acute and Delayed

No data available

#### 4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available

### 5. FIREFIGHTING MEASURES

#### 5.1 Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### 5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides

#### 5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary. Use personal protection equipment.

#### 5.4 Further Information

No data available.

### 6. ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use recommended personal protective equipment (see Section 8). Adequate ventilation must be provided to ensure vapours or mists are not inhaled. Vapours are heavier than air and may accumulate in low areas. All sources of ignition, including sources of static discharge, must be removed from area.

#### 6.2 Environmental Precautions

Material should not be allowed to enter the environment. Prevent further spillage or discharge into drains, if safe to do so.

#### 6.3 Methods and Materials for Containment and Cleaning Up

Contain the spill and then collect using non-combustible absorbent material (such as clay, diatomaceous earth, vermiculite or other appropriate material). Place material in a suitable, sealable container and then dispose according to local/national regulations and guidance (see Section 13).

#### **6.4 Reference to Other Sections**

For protective equipment, refer to Section 8. For disposal, see Section 13.

## **7. HANDLING AND STORAGE**

### **7.1 Precautions for Safe Handling**

Avoid contact with skin and eyes. Ventilation and proper handling are to be used to prevent the formation of vapours and mists. Remove all sources of ignition and take precautionary measures to prevent the buildup of electrostatic discharge (ground and bond containers as appropriate). No smoking, eating or drinking around this material. Wash hands after use.

### **7.2 Conditions for Safe Storage, Including any Incompatibilities**

Ensure container is kept securely closed before and after use. Keep in a well ventilated area and do not store with strong oxidizers or other incompatible materials (see Section 10).

Storage conditions: 4°C

### **7.3 Specific End Uses**

For scientific research and development only. Not for use in humans or animals.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Control Parameters**

Contains no components with established occupational exposure limits.

### **8.2 Exposure Controls**

#### **Appropriate Engineering Controls**

A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

#### **Personal Protective Equipment**

All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

#### **Eye/Face Protection**

Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

#### **Skin Protection**

Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as "chemical resistant" by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.

Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.

Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated "chemical resistant" as per EN 374 with the resistance codes corresponding to the anticipated use of the material.

Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.

Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

#### **Body Protection**

Chemical-resistant bodysuit (laminated Tychem SL or equivalent).

#### **Respiratory Protection**

Recommended respirators are NIOSH-approved OV/Multi-gas/P100 or CEN-approved ABEK-FFP3 respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on Basic Physical and Chemical Properties**

#### **A) Appearance**

Clear Colorless Oil

#### **C) Odour Threshold**

No data available

#### **B) Odour**

No data available

#### **D) pH**

No data available

- E) Melting Point/Freezing Point**  
No data available
- G) Flash point**  
No data available
- I) Flammability (Solid/Gas)**  
No data available
- K) Vapour Pressure**  
No data available
- M) Relative Density**  
No data available
- O) Partition Coefficient: n-octanol/water**  
No data available
- Q) Decomposition Temperature**  
No data available
- S) Explosive Properties**  
No data available

- F) Initial Boiling Point/Boiling Range**  
No data available
- H) Evaporation Rate**  
No data available
- J) Upper/Lower Flammability/Explosive Limits**  
No data available
- L) Vapour Density**  
No data available
- N) Solubility**  
Chloroform, Methanol
- P) Auto-Ignition Temperature**  
No data available
- R) Viscosity**  
No data available
- T) Oxidizing Properties**  
No data available

## **9.2 Other Information**

no data available

# **10. STABILITY AND REACTIVITY**

## **10.1 Reactivity**

No data available

## **10.2 Chemical Stability**

Stable under recommended storage conditions.

## **10.3 Possibility of Hazardous Reactions**

No data available

## **10.4 Conditions to Avoid**

Heat, flames, sparks.

## **10.5 Incompatible Materials**

Strong oxidizing agents.

## **10.6 Hazardous Decomposition Products**

No data available

# **11. TOXICOLOGICAL INFORMATION**

## **11.1 Information on Toxicological Effects**

### **A) Acute Toxicity**

LD50 (oral - rat) 220 mg/kg

LD50 (dermal - rabbit) 70 mg/kg

### **B) Skin Corrosion/Irritation**

No data available

### **C) Serious Eye Damage/Irritation**

No data available

### **D) Respiratory or Skin Sensitization**

No data available

### **E) Germ Cell Mutagenicity**

No data available

### **F) Carcinogenicity**

No data available

### **G) Reproductive Toxicity/Teratogenicity**

No data available

### **H) Single Target Organ Toxicity - Single Exposure**

No data available

### **I) Single Target Organ Toxicity - Repeated Exposure**

No data available

### **J) Aspiration Hazard**

No data available

### **K) Potential Health Effects and Routes of Exposure**

#### **Inhalation**

Toxic if inhaled. May cause respiratory tract irritation.

#### **Ingestion**

Toxic if swallowed.

#### **Skin**

May be fatal if absorbed through skin. May cause skin irritation.

#### **Eyes**

May cause eye irritation.

### **L) Signs and Symptoms of Exposure**

No data available

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

### **M) Additional Information**

RTECS: GW7000000

## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

No data available

### **12.2 Persistence and Degradability**

No data available

### **12.3 Bioaccumulative Potential**

No data available

### **12.4 Mobility in Soil**

No data available

### **12.5 Results of PBT and vPvB Assessment**

No data available

### **12.6 Other Adverse Effects**

No data available

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste Treatment Methods**

#### **A) Product**

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

#### **B) Contaminated Packaging**

Dispose of as above.

#### **C) Other Considerations**

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

## **14. TRANSPORT INFORMATION**

### **14.1 UN Number**

DOT (US): 2929

IATA: 2929

IMDG: 2929

ADR/RID: 2929

### **14.2 UN Proper Shipping Name**

DOT (US)/IATA:

Toxic liquids, flammable, organic, n.o.s. (2-Cyclohexen-1-one)

IMDG/ARD/RID:

TOXIC LIQUIDS, FLAMMABLE, ORGANIC, N.O.S. (2-CYCLOHEXEN-1-ONE)

### **14.3 Transport Hazard Class(es)**

DOT (US): 6.1 (3)

IATA: 6.1 (3)

IMDG: 6.1 (3)

ADR/RID: 6.1 (3)

### **14.4 Packing Group**

DOT (US): II

IATA: II

IMDG: II

ADR/RID: II

### **14.5 Environmental Hazards**

DOT (US): None

IATA: None

IMDG: None

ADR/RID: None

### **14.6 Special Precautions for User**

None

## **15. REGULATORY INFORMATION**

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

### **15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture**

This Safety Data Sheet contains 16 sections. All 16 sections must be present for this document to be valid.

**A) Canada**

**DSL/NDSL Status:** This product or a component of this product is registered on the Canadian DSL/NDSL.

**B) United States**

**TSCA Status:** This product or a component is listed on the US EPA TSCA.

**C) European Union**

**ECHA Status:** This product is not registered with the EU ECHA.

**15.2 Chemical Safety Assessment**

No data available

**16. OTHER INFORMATION****16.1 Revision History**

Original Publication Date: 11/21/2014

**16.2 List of Abbreviations**

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

**16.3 Further Information**

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.