

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

### 1.1 Product Identifier

**Chemical Name** 2-Acetyl-1-pyrroline-<sup>13</sup>C<sub>2</sub> 85% (10% w/w in Toluene)

**Catalogue #** A187654

### 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.

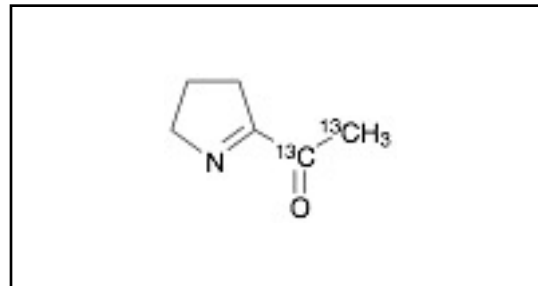
### 1.3 Details of the Supplier of the Safety Data Sheet

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

**Telephone** +14166659696

**FAX** +14166654439

**Email** orders@trc-canada.com



### 1.4 Emergency Telephone Number

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

## 2. HAZARDS IDENTIFICATION

### WHMIS Classification (Canada)

B2 Flammable Liquid

D2A Very Toxic Material Causing Other Toxic Effects  
Chronic Toxicity

Reproductive Toxin/Teratogen

D2B Toxic Material Causing Other Toxic Effects  
Moderate Skin irritant

### WHMIS Symbols (Canada)



### 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 2)

Acute Toxicity, Oral (Category 4)

Skin Irritation (Category 2)

Reproductive Toxicity (Category 2)

Specific Target Organ Toxicity, Single Exposure; Central nervous system (Category 3)

Specific Target Organ Toxicity, Repeated Exposure (Category 2)

Aspiration Hazard (Category 1)

Hazardous to the Aquatic Environment, Acute Hazard (Category 2)

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

**Signal Word** Danger

**GHS Hazard Statements**



H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H361	Suspected of damaging fertility or the unborn child.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.
H304	May be fatal if swallowed and enters airways.
H401	Toxic to aquatic life.

#### GHS Precautionary Statements

P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P281	Use personal protective equipment as required.
P301/P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.

### 2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

## **3. COMPOSITION/INFORMATION ON INGREDIENTS**

### 3.1 Substances

**Molecular Formula:** C<sub>4</sub><sup>13</sup>C<sub>2</sub>H<sub>9</sub>NO

**Molecular Weight:** 113.13

**CAS Registry #:** 1246819-73-7

**EC#:**

#### **Synonyms**

1-(3,4-Dihydro-2H-pyrrol-5-yl)ethanone-<sup>13</sup>C<sub>2</sub>; 2-Acetyl-4,5-dihydro-3H-pyrrole-<sup>13</sup>C<sub>2</sub>;

### 3.2 Mixtures

<b>Ingredient</b>	<b>CAS#</b>	<b>EC#</b>	<b>Index-No.</b>	<b>%Composition</b>
2-Acetyl-1-pyrroline- <sup>13</sup> C <sub>2</sub>	1246819-73-7	N/A	N/A	10%
Toluene	108-88-3	203-625-9	601-021-00-3	90 %

## **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

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

### 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, Nitrogen oxides

## 5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

## 5.4 Further Information

No data available.

# 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### Method and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

# 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.  
Keep in a dry place.

Storage conditions: Amber Vial, -20°C Freezer, Under inert atmosphere

### 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

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Toluene	108-88-3	TWA	20 ppm	Canada. British Columbia OEL
<b>Remarks</b>		Adverse reproductive effect		
		TWA	50 ppm 188 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		Substance may be readily absorbed through intact skin		
		TWAEV	50 ppm 188 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		Skin (percutaneous)		
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Visual impairment Female reproductive Pregnancy loss		
		TWAEV	20 ppm	Canada. Ontario OELs

## 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 glasses or safety goggles. 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 "low chemical resistant" or "waterproof" by EU standard EN 374. Unrated gloves are not recommended.

Suggested gloves: AnsellPro nitrile gloves style 92-500 or 92-600, 5 mil thickness.

Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated "chemical resistant" as per EN 734 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

Fire resistant (Nomex) lab coat or coveralls.

### Respiratory Protection

Recommended respirators are NIOSH-approved OV/Multi-Gas/P95 or CEN-approved ABEK-P2 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 Pale Yellow to Orange Solution

#### B) Odour

No data available

#### C) Odour Threshold

No data available

#### D) pH

No data available

#### E) Melting Point/Freezing Point

No data available

#### F) Initial Boiling Point/Boiling Range

No data available

#### G) Flash point

No data available

#### H) Evaporation Rate

No data available

#### I) Flammability (Solid/Gas)

No data available

#### J) Upper/Lower Flammability/Explosive Limits

No data available

#### K) Vapour Pressure

No data available

#### L) Vapour Density

No data available

#### M) Relative Density

No data available

#### N) Solubility

Chloroform, Toluene

#### O) Partition Coefficient: n-octanol/water

No data available

#### P) Auto-Ignition Temperature

No data available

#### Q) Decomposition Temperature

No data available

#### R) Viscosity

No data available

#### S) Explosive Properties

#### T) Oxidizing Properties

**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**

Vapours may form explosive mixture with air.

**10.4 Conditions to Avoid**

Heat, flames and sparks.

**10.5 Incompatible Materials**

Strong oxidizing agents.

**10.6 Hazardous Decomposition Products**

In the event of fire: See section 5. Other decomposition products: No data available.

**11. TOXICOLOGICAL INFORMATION****11.1 Information on Toxicological Effects****A) Acute Toxicity**

Oral LD50: No data available.

Inhalation LC50: No data available.

Dermal LD50: No data available.

**B) Skin Corrosion/Irritation**

Moderate skin irritant.

**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**

Limited evidence of a carcinogenic effect.

This compound has been designated as Group 3: Not classifiable as to its carcinogenicity in humans.

**G) Reproductive Toxicity/Teratogenicity**

Laboratory results have shown reproductive toxicity/teratogenicity in animal models.

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

No data available

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

No data available

**J) Aspiration Hazard**

May be fatal if swallowed and enters airways.

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

May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion**

Harmful if swallowed. Aspiration hazard - can enter lungs and cause damage.

**Skin**

May be harmful if absorbed through skin. Causes skin irritation.

**Eyes**

May cause eye irritation.

**L) Signs and Symptoms of Exposure**

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

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

thoroughly investigated.

#### **M) Additional Information**

RTECS: XS5250000 (Toluene)

### **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): UN1294

IATA: UN1294

IMDG: UN1294

ADR/RID: UN1294

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

DOT (US)/IATA:

Toluene, solution

IMDG/ARD/RID:

TOLUENE, SOLUTION

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

DOT (US): 3

IATA: 3

IMDG: 3

ADR/RID: 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**

##### **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 or a component is registered with the EU ECHA.

#### **15.2 Chemical Safety Assessment**

No data available

### **16. OTHER INFORMATION**

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### **16.1 Revision History**

Original Publication Date: 7/12/2017

### **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
TDL0	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.