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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product Name: Ninhydrin Reagent  
Catalog Number: RN70  
Product Use: For laboratory use only

Manufacturer's Name: Dalynn Biologicals Inc.  
Supplier's Name: Dalynn Biologicals Inc.  
Address: 3253 – 34 Avenue NE  
Calgary, AB, Canada  
T1Y 6X2

Telephone: 1-888-404-4045  
Fax: (403) 250-9010  
Chemical Emergency: 1-613-996-6666  
Phone Number Only

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**2. HAZARD IDENTIFICATION****Emergency Overview****GHS Classification**

Flammable liquids (Category 3)  
Acute toxicity, Oral (Category 4)  
Acute toxicity, Inhalation (Category 5)  
Acute toxicity, Dermal (Category 5)  
Skin corrosion/irritation (Category 2)  
Serious eye damage/eye irritation (Category 1)

**GHS Label Elements, Including Precautionary Statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapor.  
H302 Harmful if swallowed.  
H316 Causes mild skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P242 Use non-sparking tools.

P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves & clothing/ eye protection/ face protection.
P310	Immediately call a poison center or doctor.
P302+P352	If on skin: Wash with plenty of water.
P305+P351+P338	If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.

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### 3. COMPOSITION & INFORMATION ON INGREDIENTS

INGREDIENT	%	CAS-No.	EC-No.	Index-No.
Ninhydrin	~4	485-47-2		
Acetone	48	67-64-1	200-662-2	606-001-00-8
Butanol	48	64-17-5	200-578-6	603-002-00-5

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### 4. FIRST AID MEASURES

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move affected individual out of affected area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Take off contaminated clothing. Wash affected area with soap and plenty of water. Consult a physician.

#### In case of eye contact

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

#### If swallowed

Do not induce vomiting. Rinse mouth with water if patient is conscious. Take patient to hospital and consult a physician.

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### 5. FIREFIGHTING MEASURES

#### Conditions of flammability

Flammable in the presence of an ignition source when the temperature is above the flash point. Keep away from heat, sparks, open flame. No smoking.

#### Suitable extinguishing media

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

#### Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### Hazardous combustion products

Hazardous decomposition products formed under fire conditions: carbon oxides (ie. carbon dioxides, carbon monoxide)

**Explosion data – sensitivity to mechanical impact**

No data available.

**Explosion data – sensitivity to static discharge**

No data available.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to explosive concentrations.

**Environmental precautions**

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

**Methods and materials for containment and cleaning up**

Wearing appropriate safety gear including chemical resistant gloves and dust mask or respirator. Soak up with paper or cloth towels and place in a sealed container and hold for disposal.

**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use in area with adequate ventilation. Keep away from sources of ignition. No smoking.

**Conditions for safe storage**

Keep container tightly closed in a well ventilated place away from ignition sources.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Acetone	67-64-1	TWA	500 ppm 1,200 mg/m <sup>3</sup>	Canada. Alberta. Occupational Health and Safety Code (table 2:OEL)
		STEL	750 ppm 1,800 mg/m <sup>3</sup>	Canada. Alberta. Occupational Health and Safety Code (table 2:OEL)
		TWA	250 ppm	Canada. British Columbia OEL
		STEL	500 ppm	Canada. British Columbia OEL
		TWA	500 ppm	Canada. Ontario OELs
		STEL	750 ppm	Canada. Ontario OELs
		STEV	1,000 ppm 2,380 mg/m <sup>3</sup>	Canada. Quebec. Regulation respecting occupational health and safety, schedule 1, Part 1
		TWAEV	500 ppm 1,190 mg/m <sup>3</sup>	Canada. Quebec. Regulation respecting occupational health and safety, schedule 1, Part 1
		TWA	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	750 ppm	USA. ACGIH Threshold Limit Values (TLV)
Butanol	71-36-3	TWA	20 ppm 60 mg/m <sup>3</sup>	Canada. Alberta. Occupational Health and Safety Code (table 2:OEL)
		TWA	15 ppm	Canada. British Columbia OEL
		C	30 ppm	Canada. British Columbia OEL

		TWAEV	20 ppm	Canada. Ontario OELs
		TWAEV	50 ppm 152 mg/m3	Canada. Quebec. Regulation respecting occupational health and safety, schedule 1, Part 1
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)

## Personal protective equipment

### Respiratory protection

Use in area with adequate ventilation. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type ABEK (EN14387) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands after use.

### Eye protection

Face shield and/or safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).

### Skin and body protection

Wear appropriate clothing such as a lab coat that covers as much of the body as possible. Complete suit can also be worn if desired.

### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	Liquid
Color	Light yellow with characteristic pungent odor

### Safety data

pH	No data available
Melting point/ freezing point	-94°C (137°F) - acetone
Boiling point	No data available
Flash point	-17°C (1.4°F) cc - acetone
Ignition temperature	343°C (649°F) - butanol
Auto ignition temperature	465°C (869°F) - acetone
Lower explosion limit	2% (V) - acetone

Upper explosion limit	13% (V) - acetone
Vapor pressure	No data available
Density	No data available
Water solubility	soluble
Partition coefficient/ n-octanol/water	No data available
Relative vapor density	No data available
Odour	No data available
Odour threshold	No data available
Evaporation rate	No data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Vapors may form explosive mixture with air.

### Materials to avoid

Oxidizing agents, strong bases, strong acids, reducing agents, alkali metals, peroxides, phosphorus oxychloride, chromic anhydride, chlorinated solvents

### Hazardous decomposition products

Other decomposition products – No data available

Hazardous decomposition products formed under fire conditions – Carbon oxides

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

LD50 Oral – Rat – 600 mg/kg (ninhydrin)

LD50 Oral – Rat – 790 mg/kg (butanol)

LD50 Oral – Rat – 5,800 mg/kg (acetone)

#### Inhalation LC50

LD50 Inhalation – Rat – 4h - >8,000 mg/l (butanol)

LD50 Inhalation – Rat – 8h - 50,100 mg/m<sup>3</sup> (acetone)

#### Dermal LD50

LD50 Dermal – Rabbit – 3,400 mg/kg (butanol)

LD50 Dermal – Guinea pig – 7,426 mg/kg (acetone)

### Other information on acute toxicity

No data available

### Skin corrosion/irritation

Skin – Rabbit – Skin irritation – 24h (butanol)  
Skin – Rabbit – Mild skin irritation – 24h (acetone)

**Serious eye damage/eye irritation**

Eye – Rabbit – Blindness – OECD Test Guidelines 405 (butanol)  
Eye – Rabbit – Moderate eye irritation (acetone)

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

This table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ninhydrin	485-47-2	Not listed	Not listed	Not listed	Not listed	Not listed
Acetone	67-64-1	Not listed	Not listed	Not listed	Not listed	Not listed
Butanol	71-36-3	Not listed	Not listed	Not listed	Not listed	Not listed

**Reproductive toxicity**

No data available

**Teratogenicity**

No data available

**Specific target organ toxicity – single exposure (GHS)**

No data available

**Specific target organ toxicity – repeated exposure (GHS)**

No data available

**Aspiration hazard**

No data available

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Causes respiratory tract inflammation. Vapors may cause drowsiness and dizziness.

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

**Eyes** Causes eye irritation on contact.

**Ingestion** Harmful if swallowed. Causes GI disturbances, nausea, dizziness and vomiting. Butanol swallowed or inhaled in sufficient quantity maybe fatal.

**Signs and Symptoms of Exposure**

Headache, dizziness, drowsiness, corneal inflammation, blurred vision, photophobia, dermatitis, hearing Loss, CNS depression. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

No data available

**Additional information**

No data available

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**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Butanol	EC50 (72h) = >500 mg/L (Desmodesmus subspicatus) EC50 (96h) = >500 mg/L (Desmodesmus subspicatus)	Pimpehales promelas (flow) LC50 = 1,740 mg/L/96h Pimpehales promelas (static) LC50 = 1,730 to 1910 mg/L/96h	EC50 = 2,041 mg/L/5 min EC50 = 2,186 mg/L/30 min EC50 = 3,980 mg/L/24 min EC50 = 4,400 mg/L/17 min	EC50 = 1,983 mg/L/48h EC50 = 1,897 – 2,072 mg/L /48h static
Acetone	NOEC = 430 mg/l (algae; 96 h)	Oncorhynchus mykiss: LC50 = 5,540 mg/l 96h Alburnus alburnus: LC50 = 11,000 mg/l 96h Leuciscus idus: LC50 = 11,300 mg/L/48h Salmo gairdneri: LC50 = 6,100 mg/L/24h	EC50 = 14500 mg/L/15 min	EC50 = 8,800 mg/L/48h EC50 = 12,700 mg/L/48h EC50 = 12,600 mg/L/48h

**Persistence and degradability**

Persistence is unlikely based on information available.

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**PBT and vPvB assessment**

No data available

**Other adverse effects**

No data available

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**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN Number: 1986    Class: 3    Packing Group: III  
 Proper Shipping Name: Flammable liquids, N.O.S. (Ethanol, Butanol)  
 Reportable Quantity (RQ): 5000 lbs  
 Marine Pollutant: No

Poison Inhalation Hazard: No

**IMDG**

UN Number: 1986    Class: 3    Packing Group: III    EMS-No: F-E, S-D  
Proper Shipping Name: Flammable liquid, N.O.S. (Ethanol, Butanol)  
Marine Pollutant: No

**IATA**

UN Number: 1986    Class: 3    Packing Group: III  
Proper Shipping Name: Flammable liquid, N.O.S. (Ethanol, Butanol)

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**15. REGULATORY INFORMATION**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by them.

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**16. OTHER INFORMATION**

**Further information**

Copyright 2018 Dalynn Biologicals Inc. The above information is believed to be correct but does not purport to be all inclusive and shall be only used 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. Dalynn Biologicals Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.