SIGNALCHEM DIAGNOSTICS

Catalog #	Aliquot Size
RNH01-E311B-500	500 U
RNH01-E311B-5000	5000 U

RNase H (Glycerol Free)

Catalog # RNH01-E311B
Lot # 1S2559-1

Product Description

RNase H (Glycerol Free) is an endoribonuclease enzyme in a glycerol free storage buffer that catalyzes the cleavage of RNA in an RNA/DNA substrate via a hydrolytic mechanism. This enzyme is supplied with a 10X reaction buffer. RNase H is optimized for reactions at 37°C.

Components

	Component Name	500 U	5000 U
	RNase H (Glycerol Free)	100 µl	1000 µl
b	10X RNase H reaction buffer	250 µl	2500 µl

Storage and Stability

Store at -20°C and mix thoroughly before use. To avoid repeated handling and multiple freeze/thaw cycles aliquot product into smaller quantities.

RNase H is sensitive to physical denaturation, and vigorous shaking can easily affect its activity. It is recommended to gently invert the test tube to mix before use.

Scientific Background

RNase H (Ribonuclease H) is an endoribonuclease that specifically hydrolyzes the phosphodiester bonds of RNA in DNA/RNA hybrid strands but does not hydrolyze phosphodiester bonds in single-stranded and double-stranded DNA or RNA. RNase H is specially optimized and formulated according to the requirements of freeze-dried reagents. It can be used in endoribonuclease H-dependent PCR amplification systems, such as qPCR, and LAMP. Applications include: removal of mRNA before second-strand cDNA synthesis, removal of poly(A) ends of mRNA in the presence of Oligo(dT), and cleavage of specific RNA sites.

Activity

The activity of RNase H was determined to be 5 Units/µl.

Unit Definition:

One unit (U) is defined as the amount of enzyme required to hydrolyze 1 nmol ribonucleotide from DNA/RNA hybrid strands at 37°C in 20 minutes, in a 50µL reaction system.

Reaction Conditions

1. 1X reaction buffer, incubate at 37°C for 20 minutes.
2. Heat inactivation at 65°C for 20 minutes.

Quality Control

Purity: No less than 98% as determined by SDS-PAGE electrophoresis.

Exogenous Nuclease Activity: None.

Contamination: No exogenous endonuclease or exonuclease contamination.

RNase H (Glycerol Free)

Catalog #	RNH01-E311B
Lot #	1S2559-1
Specific Activity	5 U/µl
Stability	2yrs at -20°C from date of shipment
Storage & Shipping	Store at -20°C. To avoid repeated handling and multiple freeze/thaw cycles aliquot product into smaller quantities. Product shipped frozen.

To place your order, please contact us by phone 1-778-326-0223 or 1-888-606-3424 (Toll free)
or by email: orders@signalchemdx.com or info@signalchemdx.com - www.signalchemdx.com

SAFETY DATA SHEET

Article 1 - Product Identification

Product Name: RNase H (Glycerol Free) **Catalog # RNH01-E311B**

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Supplier of Datasheet:	SignalChem Diagnostics Inc.
Street Address:	*190-13160 Vanier Place*
City, Prov. Postal Code:	*Richmond, BC, V6V 2J2*
Country:	*Canada*
Emergency Phone:	1-888-606-3424 (Toll free) 1-778-326-0223 (local)

Article 2 - Hazard Identification

- **WHMIS Classification:** Not WHMIS controlled.
- **GHS classification:** Not GHS classified.
- **Hazard Pictograms:** No labelling applicable.
- **Signal words:** None.
- **Hazard statements:** None.
- **Precautionary statements:** None.
- **Other hazards:** None known.

Article 3 – Composition/Information on Ingredients

Description: This product consists of the components listed below.

Component: RNase H (Glycerol Free)
Chemical Characterization: Mixture.

Common name	Chemical name	CAS-No.	Concentration
Water	H_2O	7732-18-5	85%
Tris	Tris(hydroxymethyl)aminomethane	77-86-1	5%
KCl	Potassium Chloride	7447-40-7	5%
DL-Dithiothreitol	1,4-dithio-dl-threitol	3483-12-3	2%
$MgCl_2$	Magnesium Chloride	7786-30-3	1%
Protein	N/A	N/A	<1%

Component: 10X RNase H reaction buffer
Chemical Characterization: Mixture.

Common name	Chemical name	CAS-No.	Concentration
Water	H_2O	7732-18-5	85%
Tris	Tris(hydroxymethyl)aminomethane	77-86-1	5%
KCl	Potassium Chloride	7447-40-7	5%
DL-Dithiothreitol	1,4-dithio-dl-threitol	3483-12-3	2%
$MgCl_2$	Magnesium Chloride	7786-30-3	1%

Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
- **After inhalation:** In case of irritation by inhaling this product, move affected person to fresh air and await recovery. If irritation persists, seek immediate medical attention. If casualty cannot breathe, give artificial respiration and seek immediate medical attention.
- **After skin contact:** Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- **After eye contact:** Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- **After swallowing:** Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.

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Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** None known.
- **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus if necessary.

Article 6 – Accidental Release Measures

- **Personal precautions, protective equipment, and emergency procedures:** Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- **Environmental precautions:** Do not allow to enter drains.
- **Methods and materials for containment and cleaning up:** Absorb on sand or vermiculite and place in closed containers for disposal.

Article 7 - Handling and Storage

- **Precautions for safe handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- **Conditions for safe storage:** Store according to product label instructions. Keep container upright and tightly closed.

Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**
  NA
- **Appropriate engineering controls:**
  Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- **Individual protection measures:**

Respiratory protection:
Use appropriate respirator if there is inadequate ventilation by following the government standards.

Hand protection:
Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.

Eye/face protection:
Safety goggles with side-shields approved under appropriate government standards.

Skin/body protection:
Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

Article 9 – Physical and Chemical Properties

Component: RNase H (Glycerol Free)

Appearance: Colorless liquid.	**Danger of explosion:** Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	**Explosion limits:** Not available.
pH: Not available.	**Decomposition temperature:** Not available.
Melting point/freezing point: Not determined.	**Vapor pressure at 20 °C:** Not available.
Boiling point/Boiling range: Not determined.	**Density:** Not determined.
Flash point: Not determined.	**Relative density:** Not determined.
Flammability (solid, gaseous): Not determined.	**Vapor density:** Not determined.
Ignition temperature: Not determined.	**Evaporation rate:** Not determined.
Auto-igniting: Product is not self-igniting.	**Solubility in / Miscibility with Water:** Fully miscible.

Component: 10X RNase H reaction buffer

Appearance: Colorless liquid.	**Danger of explosion:** Product does not present an explosion hazard.
Odour/Odour Threshold: Not determined.	**Explosion limits:** Not available.
pH: Not available.	**Decomposition temperature:** Not available.
Melting point/freezing point: Not determined.	**Vapor pressure at 20 °C:** Not available.
Boiling point/Boiling range: Not determined.	**Density:** Not determined.
Flash point: Not determined.	**Relative density:** Not determined.
Flammability (solid, gaseous): Not determined.	**Vapor density:** Not determined.
Ignition temperature: Not determined.	**Evaporation rate:** Not determined.
Auto-igniting: Product is not self-igniting.	**Solubility in / Miscibility with Water:** Fully miscible.

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Article 10 - Stability and Reactivity

- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat and moisture.
- **Incompatible materials:** Not determined.
- **Hazardous decomposition products:** Not determined.

Article 11 - Toxicological Information

- **Acute toxicity:** Not available.
- **LD/LC50:** Not available.
- **Skin corrosion/irritation:** Not available.
- **Serious eye damage/eye irritation:** Not available.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- **Reproductive toxicity:** Not available.
- **Teratogenicity:** Not available.
- **Specific target organ toxicity - single exposure/ - repeated exposure (GHS):** Not available.
- **Aspiration hazard:** Not available.
- **Potential health effects:**
  Inhalation: No data available
  Ingestion: No data available
  Skin: No data available
  Eyes: No data available
- **Signs and Symptoms of Exposure:** No data available
- **Synergistic effects:** Not available.

Article 12 - Ecological Information

- **Eco-toxicity:** No data available.
- **Biodegradability:** Not applicable.
- **Bio-accumulative potential:** Not applicable.
- **Mobility in soil:** Not applicable.
- **PBT and vPvB assessment:** Not applicable.
- **Other adverse effects:** Not applicable.

Article 13 - Disposal Considerations

- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- **Contaminated packaging:** Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

Article 14 - Transport Information

- **DOT:** Not dangerous goods.
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.

Article 15 – Regulatory Information

- **WHMIS Classification:** Non-hazardous.
- **GHS label elements:** Not applicable.
- **Signal word:** Not applicable.
- **Hazard statements:** Not applicable.

Article 16 - Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.