



# SAFETY DATA SHEET

[Required under safety and health regulations for shipping and handling]

Version: 2023  
Date Updated: Feb. 09, 2023

## SECTION 1. ----- PRODUCT AND COMPANY IDENTIFICATION -----

**Product Name** RNase A  
**Product Code(s)** RB0473  
**Recommended Use** For Laboratory Research Use Only  
Not for Human or Animal Drug Use

**Supplier** Bio Basic Inc.  
**Address** 20 Konrad Crescent, Markham, Ontario,  
Canada, L3R 8T4  
**Telephone** (905) 474 4493  
**Fax** (905) 474 5794  
**For Chemical Emergency Phone#** (416) 995 9730

## SECTION 2. ----- HAZARDS IDENTIFICATION -----

### Classification of the substance or mixture

Not a hazardous substance or mixture.

### GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

### Hazards not otherwise classified (HNOC) or not covered by GHS

Possible sensitizer.

## SECTION 3. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

Chemical Name	EC No.	CAS-No	Weight %
Ribonuclease A	232-646-6	9001-99-4	<100

No components need to be disclosed according to the applicable regulations.

## SECTION 4. ----- FIRST-AID MEASURES -----

### Description of first aid measures

#### If inhaled

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

#### In case of skin contact

Wash off with soap and plenty of water.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11

### Indication of any immediate medical attention and special treatment needed

No data available

## **SECTION 5. ----- FIRE FIGHTING MEASURES -----**

### **Extinguishing media**

#### **Suitable extinguishing media**

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

#### **Special hazards arising from the substance or mixture**

Nature of decomposition products not known.

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

Risk of dust explosion.

#### **Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

#### **Further information**

Prevent fire extinguishing water from contaminating surface water or the ground water system.

## **SECTION 6. ----- ACCIDENTAL RELEASE MEASURES-----**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

### **Environmental precautions**

Do not let product enter drains.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### **Reference to other sections**

For disposal see section 13.

## **SECTION 7. ----- HANDLING AND STORAGE-----**

### **Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.

### **Conditions for safe storage, including any incompatibilities**

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

Recommended storage temperature -20 °C

Keep in a dry place.

Storage class (TRGS 510): 11: Combustible Solids.

### **Specific end use(s)**

Apart from the uses mentioned in section 1 no other specific uses are stipulated

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

### **Control parameters**

### **Exposure controls**

#### **Appropriate engineering controls**

General industrial hygiene practice. Change contaminated clothing. Wash hands after working with substance.

## Personal protective equipment

### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin 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.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm Break through time: 480 min

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0.11 mm Break through time: 480 min

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Do not let product enter drains.

## SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

### Information on basic physical and chemical properties

a) Appearance	Form: powder, (lyophilised), Color: white, off-white
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 and boiling range	No data available
g) Flash point	( )No data available
h) Evaporation rate	No data available

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|----|--|-------------------|
| i) | Flammability (solid, gas)                    | No data available |
| j) | Upper/lower flammability or explosive limits | No data available |
| k) | Vapour pressure                              | No data available |
| l) | Vapour density                               | No data available |
| m) | Relative density                             | No data available |
| n) | Water solubility                             | No data available |
| 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                         | No data available |
| t) | Oxidizing properties                         | No data available |

**Other safety information**

No data available

**SECTION 10. -----STABILITY AND REACTIVITY -----**

**Reactivity**

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

No data available

**Conditions to avoid**

No data available

**Incompatible materials**

Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions.

Nature of decomposition products not known.

Other decomposition products - No data available In the event of fire: see section 5

**SECTION 11. ----- TOXICOLOGICAL INFORMATION -----**

**Information on toxicological effects**

**Acute toxicity**

No data available Inhalation: No data available

Dermal: No data available

LD50 Subcutaneous - Rat - 290 mg/kg

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

**Germ cell mutagenicity Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

RTECS: RF0760000

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

**SECTION 12. ----- ECOLOGICAL INFORMATION -----****Toxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

No data available

**SECTION 13. ----- DISPOSAL CONSIDERATIONS -----****Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

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

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

**SECTION 15. ----- REGULATORY INFORMATION -----**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

**SECTION 16. ----- OTHER INFORMATION -----**

Further information: no limited for paper copy, just for internal uses.  
For research use only. Not intended for human or animal diagnostic or therapeutic uses.

**Disclaimer**

The information provided on this MSDS 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.

**Issuing Date:** 09-Oct-2019

**End of SDS**



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## CERTIFICATE OF ANALYSIS

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Product	RNase A
Grade	Biotech Grade
Formula	N/A
MW	N/A
CAS#	9001-99-4
Product Code	RB0473
Lot No	

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Test Items	Specifications	Actual Results
Appearance	White to off-white to light brown lyophilized powder	
Activity	≥50 Kunitz u/mg	
Loss on drying	≤5.0%	
Solubility(1%,water)	Pass	

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Storage: -20°C. Keep dry.



## **Product Information**

### **RNAase A**

**Product Name:** Ribonuclease A for molecular biology

**Product Code:** RB0473

**CAS No.** 9001-99-4

#### **Product Description**

RNase A is an endoribonuclease that attacks at the 3' phosphate of a pyrimidine nucleotide. The sequence of pG-pG-pC-pA-pG will be cleaved to give pG-pG-pCp and A-pG. The highest activity is exhibited with single stranded RNA. RNase A is a single chain polypeptide containing 4 disulfide bridges. In contrast to RNase B, it is not a glycoprotein. RNase A can be inhibited by alkylation of His<sup>12</sup> or His<sup>119</sup>, which are present in the active site of the enzyme. Activators of RNase.

Molecular mass: 13.7 kDa (amino acid sequence)

Extinction coefficient: E1% = 7.1 (280 nm)

Isoelectric point: pI = 9.6

Optimal temperature: 60 °C (activity range of 15–70 °C)

Optimal pH: 7.6 (activity range of 6–10)

Inhibitors: ribonuclease inhibitor

The chromatographically purified product is supplied as an essentially salt-free lyophilized powder.

Activity (Kunitz): ≥50 units/mg protein

#### **Precautions and Disclaimer**

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Note: RNase A is stable to both heat and detergents. In addition, it adsorbs strongly to glass. Scrupulous precautions are necessary to ensure RNase A residue does not cause artifacts in processes requiring intact RNA.

#### **Preparation Instructions**

When BBI tests the activity of RNase A, a stock solution is prepared in water at 10 mg/ml. Note: Boiling stock solutions of this RNase A product to inactivate residual DNase is not necessary and may cause precipitation of RNase and possible loss of enzymatic activity. If an RNase A solution is heated at a neutral pH, precipitation will occur. When heated at a lower pH, some precipitation may occur because of protein impurities that are present.

#### **Storage/Stability**





This product remains active for at least 3 years when stored properly at  $-20\text{ }^{\circ}\text{C}$ .

RNase A is a very stable enzyme and solutions have been reported to withstand temperatures up to  $100\text{ }^{\circ}\text{C}$ . At  $100\text{ }^{\circ}\text{C}$ , an RNase A solution is most stable between pH 2.0 and 4.5.

## **Procedure**

A major application for RNase A is the removal of RNA from preparations of plasmid DNA. For this application, DNase free RNase A is used at a final concentration of 0.2 mg/ml.