Version No: **1** Issue date: **30/APR/2024** Revision date: **Not Applicable**

Safety Data Sheet (Conforms to Annex II of REACH (1907/2006) - Regulation 2020/878)

SECTION 1. Identification of the substance / mixture and of the company / undertaking

1.1. Product Identifier

Product name	RNase A
Synonyms	Not Available
Other means of identification	Not Available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Laboratory use.
Uses advised against	Not Applicable

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**CleanNA**
Address	Coenecoop 75, 2741 PH, Waddinxveen, The Netherlands
Telephone	+31 (0) 182 22 33 50
Fax	+31 (0) 182 22 33 98
Website	www.cleanna.com
Email	info@cleanna.com

1.4. Emergency telephone number

Emergency telephone numbers	112 (European emergency number)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	H317 Sensitisation (Skin) – Category 1 H334 Sensitisation (Respiratory) – Category 1A

2.2. Label elements

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

H317	May cause an allergic skin reaction
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P261	Avoid breathing mist / vapours / spray
P272	Contaminated work clothing should not be allowed out of the workplace
P280	Wear protective gloves and protective clothing
P2840	(In case of inadequate ventilation) wear respiratory protection.

Precautionary statement(s) Response

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER / doctor / physician / first aider
P302+P352	IF ON SKIN: Wash with plenty of water and soap
P333 + P313	If skin irritation or rash occurs: Get medical advice / attention..
P362+P364	Take off contaminated clothing and wash it before reuse..

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

2.3 Other hazards

Cumulative effects may result following exposure*.

Reach – Art. 57 – 59: the mixture does not contain Substances of Very High Concern 9SVHC) at the SDS print date

SECTION 3. Composition / information on ingredients

3.1 Substances

See 'Composition on ingredients' in Section 3.2

3.2 Mixtures

1. CAS No 2. EC No 3. Index No 4. REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	SCL / M-Factor	Nanoform Particle Characteristics
1. 9001-99-4 2. 232-646-6 3. Not Available 4. Not Available	1 – 1-	Ribonuclease A	Not Applicable	Not Available	Not Available
Legend:	*2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*				

SECTION 4. First aid measures

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Wash out immediately with water. ▸ If irritation continues, seek medical attention ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
Ingestion	▸ Immediately give a glass of water. ▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically

SECTION 5. Firefighting measures

5.1 Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area

5.2 Special hazards arising from the substrate or mixture

Fire Incompatibility	None known

5.3. Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in event of fire ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ Use firefighting procedures suitable for surrounding area. ▸ **DO NOT** approach containers suspected to be hot. ▸ Cool fire exposed containers with water spray from a protected location. ▸ If safe to do so, remove containers from path of fire. ▸ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	▸ Non-combustible. ▸ Not considered a significant fire risk, however containers may burn Decomposition may products toxic fumes of: Hydrogen cyanide Nitrogen oxides (NOx) May emit poisonous fumes. May emit corrosive fumes.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

See section 8

6.2 Environmental precautions

See section 12

6.3 Methods and material for containment and cleaning up

Minor Spills	▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. ▸ Control personal contact with the substance, by using protective equipment. ▸ Contain and absorb spill with sand, earth, inert material or vermiculite ▸ Wipe up. ▸ Place in a suitable, labelled container for waste disposal.
Major Spills	Moderate hazard. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ Stop leaks if safe to do so - Contain spill with sand, earth or vermiculite - Collect recoverable product into labelled containers for recycling - Neutralize / decontaminate residue (see Section 13 for specific agent) - Collect sloid residues and seal in labelled drums for disposal - Wash area and prevent runoff into drains - After clean up operations, decontaminate and launder all protective clothing and equipment before storing and resue - If contamination of drains or waterways occurs, advise emergency services.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Safe handling	▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Prevent concentration in hollows and sumps. ▸ **DO NOT** enter confined spaces until atmosphere has been checked. ▸ Avoid smoking, naked lights or ignition sources. ▸ Avoid contact with incompatible materials. ▸ When handling, **DO NOT** eat, drink or smoke. ▸ Keep containers securely sealed when not in use. ▸ Avoid physical damage to containers. ▸ Always wash hands with soap and water after handling. ▸ Work clothes should be laundered separately. ▸ Use good occupational work practice. ▸ Observe manufacturer's storage and handling recommendations contained within this SDS. ▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. ▸ **DO NOT** allow clothing wet with material to stay in contact with skin
Fire and explosion protection	See section 5
Other information	None known

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	▸ Polyethylene or polypropylene container ▸ Packaging as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks
Storage incompatibility	It is suggested that crystalline proteins are explosive as evidenced by the easily induced shattering of microcrystals. This may be a consequence of the implosive collapse of a metastable ordering or molecules (Bretherick's Handbook of Reactive Chemical Hazards). A study was performed to obtain quantitative data on the nature and yields of oxidation products formed by a prototypic oxidant system (HO / O2) on small peptides, including Val-Gly-Val-Ala-Pro-Gly. Study results indicated that hydroperoxide formation occurred non-randomly (Pro > Val > Ala > Gly) an that the formation of hydroperoxide was inversely related to carbonyl yields (both peptide-bound and released). Multiple alcohols were generated at both side-chain and backbone sites. Summation of the product concentrations provided clear evidence for the occurrence of chain reactions in peptides exposed to HO / O2, with overall product yields exceeding that of the initial HO generated.
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not available
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not available

7.3. Specific end use(s)

See section 1.2

SECTION 8. Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
Not Available	Not Available	Not Available

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
RNase A	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
Ribonuclease A	Not Available	Not Available

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying 'escape' velocities which, in turn, determine the 'capture velocities' of fresh circulating air required to effectively remove the contaminant.

Type of contaminant	Air Speed
Solvent, vapours, degreasing etc. evaporating from tank (in still air)	0.25 – 0.5 m/s (50 – 100 f/min)
Aerosols, fumes form pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5 – 1 m/s (100 – 200 f/min)
Direct spray, spray painting in shallow boots, drum filling, conveyer loading, crusher debts, gas discharge (active generation into zone of rapid air motion)	1 – 2.5 m/s (200 – 500 f/min)
Grinding, abrasive blasting, tumbling, high speed generated dusts (released at high velocity into zone of very high rapid air motion)	w.5 – 10 m/s (500 – 200 f/min)

Within each range the appropriate value depends to:

Lower end of range	Upper end of range
1: Room air currents minimal of favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
3: Intermittent, low production	3: High Production, heavy use
4: Large hood or large air mass in motion	4: Small hood – local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

8.2.2. Personal protection

Eye and face protection

- Safety glasses with side shields
- Chemical goggles

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin protection

See Hand protection below

Hand / feet protection	- Wear chemical protective gloves, e.g. PVC - Wear safety footwear of safety gumboot, e.g. Rubber **NOTE:** The material may produce skin sensitisation in predisposed individuals. Care must be taken when removing gloves and other protective equipment, to avoid all possible skin contact. **NOTE:** Contaminated leather items such as shoes, belts and watch-bands should be removed and destroyed. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). · When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Body protection	See Other protection below
Other protection	- Overalls. - P.V.C apron. - Barrier cream. - Skin cleansing cream. - Eye wash unit.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the **"Forsberg Clothing Performance Index".**

The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection: RNase A

Material	Index	
NATURAL RUBBER	A	Best selection
NATURAL +NEOPRENE	A	Best selection
NITRILE	A	Best selection

NOTE: As a series of factors influence the actual performance of the glove, a final selection must be based on detailed observation.
***** Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).

Selection of the Class and Type of respirator will depend upon the level of breathing zone compartment and the chemical nature of the contaminant. Protection factors (Defined as the ratio of contaminant outside and inside the mask) may also be important.

Required Minimum Protection Factor	Max. Gas / vapour concentration present in air ppm (by volume)	Half-Face Respirator	Full-face Respirator
Up to 10	1000	A-AUS / Class 1 P2	-
Up to 50	1000	-	A-AUS / Class 1 P2
Up to 50	5000	Airline *	-
Up to 100	5000	-	A-2 P2
Up to 100	10000	-	A-3 P2
100+			Airline **

Legend

* continuous flow ** continuous flow of positive pressure demand

B2	Acid gas or hydrogen cyanide (HCN)
B3	Acid gas or hydrogen cyanide (HCN)
E	Sulfur dioxide (SO2)
G	Agricultural chemicals
K	Ammonia (NH3)
Hg	Mercury
NO	Oxides of Nitrogen
MB	Methyl bromide
AX	Low boil point organic compounds (< 65 degrC)

8.2.3. Environmental exposure controls

See section 12

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Not Available

Physical state	Liquid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10. Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	- Unstable in the presence of incompatible materials. - Product is considered stable .- Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irrittaion of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	The material has **NOT** been classified by EC Directives or other classification systems as “harmful by ingestion”. This is because of the lack of corroborating animal or human evidence.
Skin Contact	Skin contact is not thought to have harmful health effects (as classified under EC Directives). The material may still produce health damage following entry through wounds, lesions or abrasions. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the bloodstream, through, for example cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to use of the material and ensure that any external damage is suitably protected.
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Chronic	Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Dust produced by proteins can sometimes sensitise workers like other foreign bodies. Symptoms include asthma appearing soon after exposure, with wheezing, narrowing of the airways and breathing difficulties.

	TOXICITY	IRRITATION
RNase A	Not Available	Not Available
	TOXICITY	**IRRITATION**
Ribonuclease A	Not Available	Not Available
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*	

RNase A	Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others and exposure to other irritants may aggravate symptoms. Allergy causing activity is due to interactions with proteins. Attention should be paid to atopic diathesis characterised by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure. The following information refers to contact allergens as a group and may not be specific to this product: - Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke’s oedema. - The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. - Other allergic skin reactions e.g. contact urticaria, involve antibody-mediated immune reactions. - The significance of the contact allergen is not simply determined by its sensitization potential. - The distribution of the substance and the opportunities for contact with it are equally important. - A weakly sensitizing substance which is widely distributed can be a more important allergen than one with stronger sensitizing potential with which few individuals come into contact. - From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1 % of the persons tested.
Ribonuclease A	For ribonuclease C from human pancreas

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✗	**Reproductivity**	✗
Serious Eye Damage/Irritation	✗	**STOT - Single Exposure**	✗
Respiratory or Skin sensitisation	✓	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

11.2. Information on other hazards

1. Endocrine Disruption Properties

Not Available

2. Other Information

See Section 11.1

SECTION 12. Ecological information

12.1 Toxicity

	Endpoint	Test duration (hr)	Species	Value	Source
RNase A	Not available	Not available	Not available	Not available	Not available
Ribonuclease A	**Endpoint**	**Test duration (hr)**	**Species**	**Value**	**Source**
	Not available	Not available	Not available	Not available	Not available
Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*				

Proteins are generally easily biodegradable.
DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available	No Data available

12.3. Bio accumulative potential

Ingredient	Bioaccumulation
	No Data available

12.4. Mobility in soil

Ingredient	Mobility
	No Data available

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine Disruption Properties

Not Available

12.7. Other adverse effects

Not Available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Product / Packaging disposal

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container cannot be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Waste treatment options: Not Available

Sewage disposal options: Not Available

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Class: Not Applicable Sub risk: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Hazard identification (Kemler): Not Applicable Classification code: Not Applicable Hazard Label: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Tunnel Restriction Code: Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	ICAO/IATA Class: Not Applicable ICAO / IATA Sub risk: Not Applicable ERG Code: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: Not Applicable Cargo Only Packing Instructions: Not Applicable Cargo Only Maximum Qty / Pack: Not Applicable Passenger and Cargo Packing Instructions: Not Applicable Passenger and Cargo Maximum Qty / Pack: Not Applicable Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	IMDG Class: Not Applicable IMDG Sub risk: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	EMS Number: Not Applicable Special provisions: Not Applicable Limited Quantities: Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	Not applicable	Not Applicable
14.4. **Packing group**	Not applicable	
14.5. **Environmental hazard**	Not applicable	
14.6 **Special precautions for user**	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

14.7. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.8. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
Ribonuclease A	Not Available

14.9. Transport in bulk in accordance with the ICG Code

Product name	Group
Ribonuclease A	Not Available

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

Ribonuclease A is found on the following regulator lists

Europe EC Inventory	European Union – European Inventory of Existing Commercial Chemical Substances (EINICS)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

ECHA SUMMARY

Ingredient	CAS number	Index No.	ECHA Dossier
Ribonuclease A	9001-99-4	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Resp. Sens. 1	GHS08, Dgr	H334
2	Resp. Sens. 1. Skin Irrit. 2 ; Eye Irrit. 2 ; STOT SE 3	GHS08, Dgr	H315, H319, H334, H335
Harmonisation Code	*1 = The most prevalent classification* *2 = The most sever classification*		

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (Ribonuclease A)
Canada - DSL	No (Ribonuclease A)
Canada - NDSL	Yes
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (Ribonuclease A)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (Ribonuclease A)
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (Ribonuclease A)
Vietnam - NCI	No (Ribonuclease A)
Russia - FBEPH	No (Ribonuclease A)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16. Other information

Full text Risk and Hazard codes

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Version Summary

Version	Date of Update	Sections Updated
1	30/APR/2024	Initial version

Other information

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.
For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
AIIC	Australian Inventory of Industrial Chemicals
BCF:	Bio Concentration Factors
BEI	Biological Exposure Index
DSL	Domestic Substances List
EINECS	European INventory of Existing Commercial chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS	Existing and New Chemical Substances Inventory
ES	Exposure Standard
FBEPH	Russian Register of Potentially Hazardous Chemical and Biological Substances
IARC	International Agency for Research on Cancer
IECSC	Inventory of Existing Chemical Substance in China
IDLH	Immediately Dangerous to Life or Health Concentrations
INSQ	Inventario Nacional de Sustancias Químicas
KECI:	Korea Existing Chemicals Inventory
LOAEL	Lowest Observed Adverse Effect Level
LOD	Limit Of Detection
NCI	National Chemical Inventory
NDSL	Non-Domestic Substances List
NLP	No-Longer Polymers
NOAEL	No Observed Adverse Effect Level
NZIoC:	New Zealand Inventory of Chemicals
OSF	Odour Safety Factor
OTV	Odour Threshold Value
PC	Permissible Concentration
PC-STEL	Permissible Concentration Short Term Exposure Limit
PICCS	Philippine Inventory of Chemicals and Chemical Substances
STEL	Short Term Exposure Limit
TCSI	Taiwan Chemical Substance Inventory
TEEL	Temporary Emergency Exposure Limit
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average