

**Elabscience Biotechnology Co., Ltd**

***MATERIAL SAFETY DATA SHEET***

**SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

Product name:	PE (R-Phycoerythrin)
Cat. No.	E-FN-N102
Application	For research use only
Company:	Elabscience Biotechnology Co., Ltd
Address:	Building B18, Biomedical Park, # 858 Gaoxin Road, Donghu Hi-Tech Development Area, Wuhan, Hubei, China
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**SECTION 2 HAZARDS IDENTIFICATION**

Items	Physical form	Hazardous Ingredient	Concentration	CAS No.
Reagent 1	Odorless and Red, liquid	Sodium azide	0.09%	26628-22-8
		Ethylenediaminetetraacetic acid	0.02%	60-00-4
		R-Phycoerythrin	1%	11016-17-4

**2.1 HAZARD STATEMENT**

Classification according to GHS

**2.1.1 Sodium azide**

H300 + H310 + H330: Fatal if swallowed, in contact with skin or if inhaled.

H373: May cause damage to organs (Brain) through prolonged or repeated exposure if swallowed.

H410: Very toxic to aquatic life with long lasting effects.

**2.1.2 Ethylenediaminetetraacetic acid**

H303: May be harmful if swallowed.

H319: Causes serious eye irritation.

H402: Harmful to aquatic life.

**2.1.3 R-Phycoerythrin**

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

**2.2 PRECAUTION STATEMENT**

Classification according to GHS

**2.2.1 Sodium azide**

P260: Do not breathe dust.

P262: Do not get in eyes, on skin, or on clothing.

P264: Wash skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/ protective clothing.

P284: Wear respiratory protection.

P301 + P310 +P330: IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.

P302 + P352 + P310: IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTER/ doctor.

P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P314: Get medical advice/ attention if you feel unwell.

P361 + P364: Take off immediately all contaminated clothing and wash it before reuse.

P391: Collect spillage.

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

P501: Dispose of contents/ container to an approved waste disposal plant.

### 2.2.2 Ethylenediaminetetraacetic acid

P264: Wash skin thoroughly after handling.

P273: Avoid release to the environment.

P280: Wear protective gloves/ protective clothing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312: Call a POISON CENTER/ doctor if you feel unwell.

P337 + P313: If eye irritation persists: Get medical advice/ attention.

P501: Dispose of contents/ container to an approved waste disposal plant.

## SECTION 3 INFORMATION ON INGREDIENTS

### 3.1 Reagent 1

Ingredient	Concentration	CAS No.
H <sub>2</sub> O	97.01%	7732-18-5
R-Phycoerythrin	1%	11016-17-4
Sodium chloride	0.9%	7647-14-5
Ammoniumsulfat	0.82%	7783-20-2
Disodium hydrogen orthophosphate	0.12%	7558-79-4
Sodium azide	0.09%	26628-22-8
Ethylenediaminetetraacetic acid	0.02%	60-00-4
Potassium chloride	0.02%	7447-40-7
Potassium dihydrogen orthophosphate	0.02%	7778-77-0

## **SECTION 4 FIRST-AID MEASURES**

Classification according to GHS

### **4.1 General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

### **4.2 If inhaled**

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

### **4.3 In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

### **4.4 In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### **4.5 If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## **SECTION 5 FIRE FIGHTING MEASURES**

### **5.1 Suitable extinguishing media**

Suitable: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide or appropriate foam. For small fires, use media such as “alcohol” foam, dry chemical or carbon dioxide.

For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.

### **5.2 Special precautions for fire-fighters**

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

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

Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## **SECTION 6 ACCIDENTAL RELEASE MEASURES**

### **6.1 Person-related safety precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

### **6.2 Measures for environmental protection**

Prevent further leakage or spillage if safe to do so. Do not let enter drains. Discharge into the environment must be avoided.

### **6.3 Measures for containment and cleaning**

Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

## SECTION 7 HANDLING AND STORAGE

### 7.1 Handling

- Wear appropriate protective clothing and safety gloves.
- Avoid inhalation.
- Avoid contact with eyes, skin and clothing.
- Mechanical exhaust required.
- Keep away from ignition sources, heat and flame.
- No smoking at working site.
- Incompatibilities: Strong oxidizing agents, Strong acids. Handling and unloading should be light, to prevent packaging broken, damp and cause losses.
- Working place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

### 7.2 Storage

- Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- Keep away from heat, sparks and flame.
- Keep away from sources of ignition.
- Incompatible: Strong oxidizing agents, Strong acids.
- Storage place should be equipped with appropriate varieties and quantities of firefighting equipment and leakage emergency treatment equipment.

## SECTION 8 EXPOSURE CONTROL/PPE

### 8.1 Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

### 8.2 Personal Protective Equipment

- Respiratory: Government approved respirator if needed.
- Eye/face: Chemical safety goggles if needed.
- Clothing: Wear appropriate protective clothing.
- Hand/skin: Protective 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.
- Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.

### 8.3 Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling.

## SECTION 9 PHYSICAL/CHEMICAL PROPERTIES

### 9.1 Sodium azide

- a) Physical state: crystalline
- b) Color: white
- c) Odor: odorless
- d) Melting point/freezing point: Melting point/range: 370 - 425 °C - ASTM E 537-76 -  
Decomposition

- e) Initial boiling point and boiling range: No data available
- f) Flammability (solid, gas): The product is not flammable. - Flammability (solids)
- g) Upper/lower flammability or explosive limits: No data available
- h) Flash point: Not applicable
- i) Autoignition temperature: 309 °C at 1,013 hPa - Relative self-ignition temperature for solids
- j) Decomposition temperature: 370 - 425 °C Decomposition energy (mass): 0.8 kJ/kg
- k) Ph: 10 at 65 g/l at 25 °C
- l) Viscosity: Viscosity, kinematic: No data available  
Viscosity, dynamic: No data available
- m) Water solubility: 65 g/l at 20 °C - completely soluble
- n) Partition coefficient n-octanol/water: Not applicable for inorganic substances
- o) Vapor pressure: No data available
- p) Density: 1.850 g/cm<sup>3</sup> at 20 °C  
Relative density: No data available
- q) Relative vapor density: No data available
- r) Particle characteristics: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: none

### **9.2 Ethylenediaminetetraacetic acid**

- a) Physical state: powder
- b) Color: white
- c) Odor: odorless
- d) Melting point/freezing point: Melting point/range: 250 °C - dec.
- e) Initial boiling point and boiling range: No data available
- f) Flammability (solid, gas): No data available
- g) Upper/lower flammability or explosive limits: No data available
- h) Flash point: Not applicable
- i) Autoignition temperature: No data available
- j) Decomposition temperature: > 220 °C
- k) pH: 2.5 at 10 g/l at 23 °C
- l) Viscosity: Viscosity, kinematic: No data available  
Viscosity, dynamic: No data available
- m) Water solubility: 0.4 g/l at 20 °C
- n) Partition coefficient n-octanol/water: No data available
- o) Vapor pressure: No data available
- p) Density: 1.46 g/cm<sup>3</sup> at 20 °C  
Relative density: No data available
- q) Relative vapor density: No data available
- r) Particle characteristics: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: none

### **9.3 R-Phycoerythrin**

- a) Appearance: Form: Suspension  
Color: Red

- b) Odor: Characteristic
- c) Odor threshold: Not determined.
- d) pH-value at 20 °C (68 °F): 7
- e) Change in condition
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: 100 °C (212 °F)
- f) Flash point: Not applicable.
- g) Flammability (solid, gaseous): Not applicable.
- h) Decomposition temperature: Not determined.
- i) Auto igniting: Product is not selfigniting.
- j) Danger of explosion: Product does not present an explosion hazard.
- k) Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- l) Vapor pressure: Not determined.
- m) Density at 20 °C (68 °F): 1.2 g/cm<sup>3</sup> (10.014 lbs/gal)
- n) Relative density Not determined.
- o) Vapor density Not determined.
- p) Evaporation rate Not determined.
- q) Solubility in / Miscibility with Water: Not miscible or difficult to mix.
- r) Partition coefficient (n-octanol/water): Not determined.
- s) Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- t) Solvent content:
  - Water: 29.6 %
  - VOC content: 0.00 %
  - Solids content: 60.4 %
- u) Other information: No further relevant information available.

## **SECTION 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**

No data available

### **10.4 Conditions to avoid**

Heat, flames and sparks

### **10.5 Incompatible materials**

Strong oxidizing agent, Light sensitive, Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents, Amines, Mercaptans.

### **10.6 Hazardous decomposition products**

Other decomposition products: No data available

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas.

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1 Sodium azide

#### Acute toxicity

LD50 Oral - Rat - 27 mg/kg

Remarks: (RTECS)

LC50 Inhalation - Rat - male and female - 4 h - 0.054 - 0.52 mg/l - dust/mist  
(US-EPA)

LD50 Dermal - Rabbit - 20 mg/kg

Remarks: (RTECS)

#### Skin corrosion/irritation

Skin - In vitro study

Result: No skin irritation  
(OECD Test Guideline 439).

#### Serious eye damage/eye irritation

Eyes - Bovine cornea

Result: No eye irritation - 4 h  
(OECD Test Guideline 437)

#### Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative  
(OECD Test Guideline 429)

#### Germ cell mutagenicity

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: unscheduled DNA synthesis assay

Test system: Chinese hamster lung cells

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 482

Result: negative

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 479

Result: negative

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Oral - May cause damage to organs through prolonged or repeated exposure.

- Brain

**Aspiration hazard**

No data available

**Additional Information**

Nausea, Headache, Vomiting, Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular damage, blindness, attacks of rigidity, and hepatic and cerebral effects., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**11.2 Ethylenediaminetetraacetic acid****Acute toxicity**

LD50 Oral - Rat - male and female - 4,500 mg/kg

(OECD Test Guideline 401)

Inhalation: No data available

Dermal: No data available

**Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 20 h

Remarks: (ECHA)

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Eye irritation

Remarks: (ECHA)

**Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Ethylenedinitilotetraacetic acid disodium salt

Maximization Test - Rabbit

Result: Does not cause skin sensitization.

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**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: AH4025000

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

**11.3 R-Phycoerythrin**

**Acute toxicity**

LD50 Oral - Rat - male and female - 2,840 mg/kg

**Skin corrosion/irritation**

Irritant to skin and mucous membranes.

**Serious eye damage/eye irritation**

Irritating effect.

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**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**

No data available

**SECTION 12 ECOLOGICAL INFORMATION**

**12.1 Sodium azide**

**Toxicity**

Toxicity to fish

flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 2.75 mg/l - 96 h  
(OECD Test Guideline 203)

Toxicity to algae

static test ErC50 - Pseudokirchneriella subcapitata - 0.35 mg/l - 96 h  
(OECD Test Guideline 201)

Toxicity to bacteria

**Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic

substances.

**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

**Endocrine disrupting properties**

No data available

**Other adverse effects**

Biological effects:

Forms toxic mixtures in water, dilution measures notwithstanding.

Herbicide

Nematocidal effect.

Discharge into the environment must be avoided.

**12.2 Ethylenediaminetetraacetic acid**

**Toxicity**

Toxicity to fish:

static test LC50 - *Lepomis macrochirus* (Bluegill sunfish) - 41 mg/l - 96 h

Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates:

static test EC50 - *Daphnia magna* (Water flea) - 625 mg/l - 24 h

(DIN 38412)

Toxicity to fish (Chronic toxicity):

flow-through test NOEC - *Danio rerio* (zebra fish) -  $\geq 25.7$  mg/l - 35 d

(OECD Test Guideline 210)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity):

semi-static test NOEC -*Daphnia magna* (Water flea) - 25 mg/l - 21 d

**Persistence and degradability**

Biodegradability:

aerobic - Exposure time 20 d

Result: 0 - 20 % - Not readily biodegradable.

Remarks: (ECHA)

Ratio BOD/ThBOD:

< 1 %

Remarks: (IUCLID)

**Bioaccumulative potential**

Bioaccumulation

*Lepomis macrochirus* - 28 d at 21 °C - 80 µg/l(Ethylenediaminetetraacetic acid)

Bioconcentration factor (BCF): 1.8

**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

**Endocrine disrupting properties**

No data available

**Other adverse effects**

May be harmful to aquatic organisms due to the shift of the pH. Avoid release to the environment.

**12.3 R-Phycoerythrin****Toxicity****Aquatic toxicity**

No further relevant information available.

**Persistence and degradability**

No further relevant information available.

**Behavior in environmental systems****Bioaccumulative potential**

No further relevant information available.

**Mobility in soil**

No further relevant information available.

**Additional ecological information****General notes**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**Other adverse effects**

No further relevant information available.

**SECTION 13 DISPOSAL CONSIDERATION****13.1 Disposal methods**

Dispose of waste in accordance to applicable national, regional, or local regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**13.2 Contaminated packaging**

Dispose in the same manner as unused product.

**SECTION 14 TRANSPORT INFORMATION**

**RID/ADR:** Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

**IATA:** Non-Hazardous for Air Transport.

**IMO:** Non-Hazardous for Sea Transport.

**SECTION 15 REGULATORY INFORMATION**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008

and its amendments.

## **SECTION 16 OTHER INFORMATION**

**IMPORTANT! Read the safety data sheets before the use and disposal of this product. Insure that this information is understood by the operators exposed to this product. Use this product for the intended purpose as indicated in the instruction manual.**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from this use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.