

# Novus Biologicals, LLC

## *MATERIAL SAFETY DATA SHEET*

### SECTION1 PRODUCT AND COMPANY IDENTIFICATION

|                  |  |
|------------------|--|
| Product name:    | Protein Carbonyls Assay Kit (Colorimetric)   |
| Application      | For research use only                        |
| Company:         | Novus Biologicals, LLC                       |
| Address:         | 10771 E Easter Ave Centennial, CO 80112, USA |
| Email:           | technical@novusbio.com                       |
| Fax:             | 303-730-1966                                 |
| Emergency Phone: | 1-888-506-6887                               |

### SECTION2 HAZARDS IDENTIFICATION

| Items     | Component            | Physical form                  | Hazardous Ingredient | Concentration | CAS No.   |
|-----------|----------------------|--------------------------------|----------------------|---------------|-----------|
| Reagent 1 | Homogenate Medium    | Odorless and colorless, liquid | No hazards           | -             | -         |
| Reagent 2 | Sulfates             | Odorless and white, powder     | No hazards           | -             | -         |
| Reagent 3 | DNPH Solution        | Odorless and colorless, liquid | No hazards           | -             | -         |
| Reagent 4 | Acid Reagent         | Odorless and colorless, liquid | Sulfuric acid        | 0.04%         | 7664-93-9 |
| Reagent 5 | Protein Precipitator | Pungent and colorless, liquid  | No hazards           | -             | -         |
| Reagent 6 | Denaturant           | Odorless and colorless, liquid | No hazards           | -             | -         |

#### 1. HAZARD STATEMENT

Classification according to GHS

##### 2.1.1 Sulfuric acid

H290: May be corrosive to metals.

H303: May be harmful if swallowed.

H314: Causes severe skin burns and eye damage.

#### 2. PRECAUTION STATEMENT

Classification according to GHS

##### 2.2.1 Sulfuric acid

P234: Keep only in original container.

P264: Wash skin thoroughly after handling.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P312 + P331: IF SWALLOWED, rinse mouth. Do not induce vomiting.

P303 + P361 + P353: IF ON SKIN (or hair), take off immediately all contaminated clothing, Rinse skin with water/shower.

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

P305 + P351 + P338 + P310: IF IN EYES, rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

### SECTION3 INFORMATION ON INGREDIENTS

| Ingredient                      | Concentration | CAS No.   |
|---------------------------------|---------------|-----------|
| H <sub>2</sub> O                | 96.144%       | 7732-18-5 |
| Sarcosine oxidase               | 0.004%        | 9029-22-5 |
| Horseradish peroxidase          | 0.002%        | 9003-99-0 |
| Tris(hydroxymethyl)aminomethane | 0.70%         | 77-86-1   |
| Sucrose                         | 1%            | 57-50-1   |
| Sodium L(+)-tartrate dihydrate  | 0.10%         | 6106-24-7 |
| DL-Aspartic acid                | 0.20%         | 617-45-8  |
| L-Proline                       | 0.02%         | 147-85-3  |
| Disodium hydrogen phosphate     | 0.29%         | 7558-79-4 |
| Potassium dihydrogen phosphate  | 0.02%         | 7778-77-0 |
| Sodium chloride                 | 0.80%         | 7647-14-5 |
| Potassium chloride              | 0.02%         | 7447-40-7 |
| Glycerol                        | 0.40%         | 56-81-5   |

### SECTION4 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.

## **SECTION5 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 (NOx), Sulphur oxides, Hydrogen chloride gas.

## **SECTION6 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.

## **SECTION7 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 fire fighting 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 fire fighting equipment and leakage emergency treatment equipment.

## SECTION8 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.

## SECTION9 PHYSICAL/CHEMIICAL PROPERTIES

### 9.1 Sulfuric acid

- a) Appearance: Liquid
- b) Odour: No data available
- c) Odour threshold: No data available
- d) pH 1.2 at 5 g/L
- e) Melting point/freezing point: 3 °C
- f) Initial boiling point and boiling range: 290 °C
- g) Flash point: No data available
- h) Evaporation rate: No data available
- i) Flammability (solid, gas): No data available
- j) Upper/lower flammability or explosive limits: No data available
- k) Vapour pressure: 1.00 mmHg at 145.8 °C
- l) Vapour density: 3.39
- m) Relative density: 1.84 g/cm<sup>3</sup>
- n) Water solubility: Soluble
- o) Partition coefficient: noctanol/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

## **SECTION10 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 (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## **SECTION11 TOXICOLOGICAL INFORMATION**

### **11.1 Sulfuric acid**

Acute toxicity

LD<sub>50</sub> Oral - Rat - 2140 mg/kg

LC<sub>50</sub> Inhalation- Mouse – 0.85 mg/l 4 h

Skin corrosion/irritation

Skin - Rabbit Result: Corrosive Serious tissue damage/tissue irritation

Eyes - Rabbit Result: Corrosive to eyes

Respiratory or skin sensitisation - No data available.

Germ cell mutagenicity: Ames test: Salmonella typhimurium- Result: Negative

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.

## SECTION 12 ECOLOGICAL INFORMATION

### 12.1 Sulfuric acid

#### **Ecotoxicity**

Toxicity to fish:

LC50 - *Lepomis macrochirus* - > 16 - < 28 mg/l - 96 h (ECHA)

Toxicity to daphnia and other aquatic invertebrates:

EC50 - *Daphnia magna* - > 100 mg/l - 48 h

NOEC - *Daphnia magna* - 9.6 mg/l - 9 d (Ethanol)

Toxicity to algae:

ErC50 - *Desmodesmus subspicatus* - > 100 mg/l - 72 h

#### **Persistence and degradability**

No data available

#### **Bioaccumulative potential**

No data available

#### **Mobility in soil**

No data available

#### **Results of PBT and vPvB assessment**

No data available

#### **Other adverse effects**

No data 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.