

# MATERIAL SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

<b>Product name:</b>	NBP3-25907 - Phenylalanine Ammonia Lyase/PAL Activity Assay Kit (Colorimetric)
<b>Application</b>	For research use only
<b>Company:</b>	Novus Biologicals, LLC
<b>Address:</b>	10771 E Easter Ave Centennial, CO 80112, USA
<b>Email:</b>	<a href="mailto:technical@novusbio.com">technical@novusbio.com</a>
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## SECTION 2 HAZARDS IDENTIFICATION

### 2.1 GHS Classification

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

#### 2.2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

#### 2.2.2 Label Elements

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

### 2.3 Other hazards-none

## SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Items	Component	Physical form	Hazardous Ingredient	Concentration	CAS No.
Reagent 1	Extracting Solution	Odorless and colorless, liquid	No hazards	-	-
Reagent 2	Buffer Solution	Odorless and colorless, liquid	No hazards	-	-
Reagent 3	Substrate	Odorless and white, powder	No hazards	-	-
Reagent 4	Stop Solution	Odorless and colorless, liquid	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )	0.040%	7664-93-9

## 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 (NOx), 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 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.

## 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 Information on basic physical and chemical properties

- a) Physical state clear, liquid
- b) Color colorless
- c) Odor odorless
- d) Melting point/freezing point : Melting point: 10.31 °C
- e) Initial boiling point and boiling range: 290 °C-lit.
- f) Flammability (solid,gas): No data available
- g) Upper/lower flammability or explosive limits: No data available
- h) Flash point : No data available
- i) Autoignition temperature : No data available
- j) Decomposition temperature : No data available
- k) pH : 1.2 at 5 g/l
- l) Viscosity: Viscosity, kinematic: No data available Viscosity, dynamic: 23 mPa.s at 20 °C
- m) Water solubility: soluble
- n) Partition coefficient: Not applicable for inorganic substances
- o) Vapor pressure: 1.33 hPa at 145.8 °C
- p) Density : 1.84 g/cm<sup>3</sup> at 25 °C-lit.  
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 Other safety information

Surface tension 55.1 mN/m at 20 °C  
Relative vapor density: 3.39-(Air = 1.0)

## 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 Information on toxicological effects

Acute toxicity

LD50 Oral-Rat-male and female-2,140 mg/kg

Remarks: (ECHA)

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

Skin-Rabbit

Result: Extremely corrosive and destructive to tissue.

Remarks: (IUCLID)

Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

Respiratory or skin sensitization: No data available

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Remarks: (HSDB)

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

### 11.2 Additional Information

RTECS: WS5600000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema.

Effects may be delayed.

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

After inhalation of aerosols: damage to the affected mucous membranes. After skin contact: severe burns with formation of scabs. After eye contact: burns, corneal lesions.

After swallowing: severe pain (risk of perforation!), nausea, vomiting and diarrhoea.

After a latency period of several weeks possibly pyloric stenosis.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12 ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates

static test EC50-Daphnia magna (Water flea)-> 100 mg/l-48 h

(OECD Test Guideline 202)

Toxicity to algae static test ErC50-Desmodesmus subspicatus (green algae)-> 100

mg/l-72 h

(OECD Test Guideline 201)

### 12.2 Persistence and degradability:

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

### 12.3 Bioaccumulative potential: No data available

### 12.4 Mobility in soil: No data available

### 12.5 Results of PBT and vPvB assessment:

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

### 12.6 Endocrine disrupting properties: No data available

### 12.7 Other adverse effects: Biological effects: Harmful effect due to pH shift.

## 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.