**** MATERIAL SAFETY DATA SHEET ****

MSDS Name: Biotinylated Human PD-1 / PDCD1 Protein, Avitag™,His Tag (recommended for biopanning)

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Biotinylated Human PD-1 / PDCD1 Protein, Avitag™,His Tag (recommended for biopanning)
Catalog Numbers: PD1-H82E4
Company Identification: ACROBIOSYSTEMS INC
For information, call: +1 800-810-0816

**** SECTION 2 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Eye: Potassium chloride can cause eye irritation, including redness, tearing, and possible abrasions.
Skin: Sodium Phosphate is a corrosive material and can cause burns. Sensitization possible through skin contact and inhalation.
Ingestion: Material can be irritating to mucous membranes and respiratory tract. Ingestion of large quantities can produce gastrointestinal irritation and vomiting.
Inhalation: Inhalation of high concentrations of dust may cause nasal or lung irritation.
Chronic: N/A

**** SECTION 3 - COMPOSITION, INFORMATION ON INGREDIENTS ****

The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

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

Eyes: Rinse opened eye for at least 15 minutes under running water, lifting upper and lower eyelids occasionally. Seek medical attention.
Skin: Remove contaminated clothing. Immediately wash with plenty of soap and water for at least 15 minutes. Seek medical attention.
Ingestion: swallowed and patient is conscious, induce vomiting. Seek medical attention immediately.
Inhalation: In case of unconsciousness, place patient on side position for transportation. If not breathing, give artificial respiration. Supply fresh air or oxygen; seek medical attention immediately.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

Fight larger fires with water or alcohol resistant foam. Firefighters should wear protective equipment and self-contained breathing apparatus. As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

Personal Precautions: Use personal protective equipment.
Methods for Cleaning Up: Take up mechanically and collect in suitable container for disposal.

**** SECTION 7 - HANDLING AND STORAGE ****

Handling: Wear personal protective equipment.
**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls: Ensure adequate ventilation, especially in confined areas

Personal Protective Equipment

Respiratory Protection: In case of insufficient ventilation wear suitable respiratory equipment.

Hand Protection: Protective gloves.

Eye Protection: Safety glasses with side-shields.

Skin and Body Protection: Lightweight protective clothing.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure: Prevent product from entering drains.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

General Information

<table>
<thead>
<tr>
<th>Form</th>
<th>Solid Lyophilized powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important Health Safety and Environmental Information</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>°C No data available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>°C No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>°C No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>°C No data available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>No data available</td>
</tr>
</tbody>
</table>

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

Stability: Stable.

Materials to Avoid: No information available.

Hazardous decomposition: No information available.

Polymerization: Hazardous polymerisation does not occur.

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

Acute Toxicity

Potential Health effects

Eyes: May cause eye irritation with susceptible persons.

Skin: No information available.

Inhalation: May cause irritation of respiratory tract.

Ingestion: May be harmful if swallowed.

Specific effects (Long Term Effects)

Carcinogenic effects: No information available.

Mutagenic Effects: No information available.

Reproductive Toxicity: No information available.

Sensitization: No information available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity Effects: No information available.

Mobility: No information available.
Biodegradation
Inherently biodegradable.

Bioaccumulation
Does not bioaccumulate.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in accordance with local regulations

**** SECTION 14 - TRANSPORT INFORMATION ****

Transportation information-DOT/IATA/IMDG
Not dangerous goods. Be available for any mode of transportation.

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
Safety, health and environmental regulations/legislation specific for the substance or mixture---no data available
Chemical Safety Assessment---For this product a chemical safety assessment was not carried out

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

For research use only

Reported by:

Company Name : ACROBIOSYSTEMS INC  Date:  05/13/2019