Safety Data Sheet

Cat. # RC-086

PVP (Polyvinylpyrrolidone)

Size: 1kg
PVP (Polyvinylpyrrolidone)
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 01/01/2017 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification
Product form: Substance
Substance name: PVP (Polyvinylpyrrolidone)
Chemical name: PVP (Polyvinylpyrrolidone)
CAS-No.: 9003-39-8
Product code: 622P
Formula: \((\text{C}_6\text{H}_9\text{NO})_n\)

BIG No: 18611

1.2. Recommended use and restrictions on use
No additional information available

1.3. Supplier
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
Saint Louis, 63132-1429 - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number
Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS US classification
Not classified

2.2. GHS Label elements, including precautionary statements
GHS US labeling
No labeling applicable

2.3. Other hazards which do not result in classification
No additional information available
SECTION 3: Composition/Information on ingredients

3.1. Substances

2.4. Unknown acute toxicity (GHS US)
Not applicable
<table>
<thead>
<tr>
<th>Name</th>
<th>Common Name (Synonyms)</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS US classification</th>
</tr>
</thead>
</table>
PVP (Polyvinylpyrrolidone)
Safety Data Sheet

3.2 Mixtures
Not applicable

SECTION 4: First-aid measures

4.1 Description of first aid measures

First-aid measures general

First-aid measures after inhalation
Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact
Rinse with water. Soap may be used. Take victim to a doctor if irritation persists.

First-aid measures after eye contact
Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion
Rinse mouth with water. Consult a doctor/medical service if you feel unwell. Victim is fully conscious: immediately induce vomiting. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

4.2 Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms
Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Non-toxic in contact with skin (LD50 skin> 5000 mg/kg). Not irritant to skin. Not irritant to respiratory organs. Slightly irritant to eyes.

Symptoms/effects after ingestion
AFTER INGESTION OF HIGH QUANTITIES: Diarrhoea.

Chronic symptoms
ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Lung tissue affection/degeneration. Enlargement/affection of the liver.

4.3 Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Suitable (and unsuitable) extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media
Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2 Specific hazards arising from the chemical

Fire hazard
DIRECT FIRE HAZARD: Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard. May build up electrostatic charges: risk of ignition.

Explosion hazard
DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.

5.3 Special protective equipment and precautions for fire-fighters

Precautionary measures fire
Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions
Dilute toxic gases with water spray.

Protection during firefighting
Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment

Emergency procedures
Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames.

Measures in case of dust release

6.1.2 For emergency responders

Protective equipment
Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. Provide equipment/receptacles with earthing. Powdered form: no compressed air for pumping over spills.

Methods for cleaning up: Stop dust cloud by humidifying. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.
Storage temperature: 20 °C
Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents.
Storage area: Store in a dry area. Store in a dark area. Provide the tank with earthing. Keep only in the original container. Meet the legal requirements.
Special rules on packaging: SPECIAL REQUIREMENTS: closing. watertight. dry. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials: SUITABLE MATERIAL: synthetic material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
PVP (Polyvinylpyrolidone) (9003-39-8)
USA - ACGIH - Occupational Exposure Limits
ACGIH TWA (mg/m³) 3 mg/m³ (Respirable fraction)

8.2. Appropriate engineering controls
Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment
Materials for protective clothing: GIVE GOOD RESISTANCE: synthetic material. rubber
Hand protection:
Gloves
Eye protection:
Safety glasses. In case of dust production: protective goggles
Skin and body protection:
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Solid. Amorphous powder.</td>
</tr>
<tr>
<td>Color</td>
<td>Off-white to light yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic odour Mild odour</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>3 - 7 (5 %)</td>
</tr>
<tr>
<td>Melting point</td>
<td>130 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 250 °C</td>
</tr>
<tr>
<td>Relative evaporation rate</td>
<td>0</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt; 0.1 hPa (20 °C)</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.2 - 1.3</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>1230 - 1290 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water. Soluble in ethanol. Soluble in chloroform. Soluble in chlorinated hydrocarbons. Water: &gt; 30 g/100ml</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>420 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

VOC content                             : 0 %
Other properties                         : Hygroscopic. Acid reaction. May generate electrostatic charges.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Hygroscopic.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Hazardous decomposition products.
# SECTION 11: Toxicological information

## 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

### PVP (Polyvinylpyrrolidone) (9003-39-8)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>100000 mg/kg (Rat, Oral)</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>&gt; 12000 mg/kg (Rat, Dermal)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>100000 mg/kg body weight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>pH</td>
<td>3 - 7 (5 %)</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>pH</td>
<td>3 - 7 (5 %)</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### Potential Adverse human health effects and symptoms

- Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Non-toxic in contact with skin (LD50 skin> 5000 mg/kg). Not irritant to skin. Not irritant to respiratory organs. Slightly irritant to eyes.
- ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Diarrhoea. Enlargement/affection of the liver.

## SECTION 12: Ecological information

### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - general</td>
<td>The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.</td>
</tr>
<tr>
<td>Ecology - air</td>
<td>Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).</td>
</tr>
<tr>
<td>Ecology - water</td>
<td>Not harmful to fishes. Mild water pollutant (surface water). Not harmful to activated sludge.</td>
</tr>
</tbody>
</table>

### 12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Classification</th>
</tr>
</thead>
</table>

### 12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVP (Polyvinylpyrrolidone) (9003-39-8)</td>
<td>Bioaccumulative potential: No bioaccumulation data available.</td>
</tr>
</tbody>
</table>

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available
SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations: Recycle/reuse. Remove to an authorized dump. Remove to an authorized incinerator with energy recovery. Precipitate/make insoluble.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Other information: No supplementary information available.

Transportation of Dangerous Goods

Transport by sea
Not regulated

Air transport
Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>PVP (Polyvinylpyrolidone) (9003-39-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 05/11/2017

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.