Polyvinylpyrrolidone, average M.W. 58,000

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Description: Polyvinylpyrrolidone, average M.W. 58,000
Cat No. : A14315
Synonyms: Povidone; PVP
CAS-No: 9003-39-8
Supplier: Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number
Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address
uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use
Laboratory chemicals.
Uses advised against
No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Powder Solid
Appearance
Light cream
Odor
Odorless

Emergency Overview
Sensitivity to light. hygroscopic. May form combustible dust concentrations in air.

Classification of the substance or mixture
Based on available data, the classification criteria are not met

Label Elements
None required

Physical and Chemical Hazards
Hygroscopic. May form combustible dust concentrations in air.

Health Hazards
The product contains no substances which at their given concentration are considered to be hazardous to health.

Environmental hazards
Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl pyrrolidone</td>
<td>9003-39-8</td>
<td>100</td>
</tr>
</tbody>
</table>

**SECTION 4. FIRST AID MEASURES**

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**
Move to fresh air. If not breathing, give artificial respiration. Obtain medical attention.

**Ingestion**
Do not induce vomiting. Obtain medical attention.

**Most important symptoms and effects**
No information available.

**Self-Protection of the First Aider**
No special precautions required.

**Notes to Physician**
Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Media**
Water spray. Carbon dioxide (CO\(_2\)). Dry chemical. Chemical foam.

**Extinguishing media which must not be used for safety reasons**
No information available.

**Specific Hazards Arising from the Chemical**
Fine dust dispersed in air may ignite.

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions**
Use personal protective equipment. Ensure adequate ventilation.

**Environmental Precautions**
See Section 12 for additional ecological information.
Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment. Avoid dust formation.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Avoid contact with skin and eyes. Do not breathe dust. Do not ingest. Minimize dust generation and accumulation. Ensure adequate ventilation.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from direct sunlight.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls

Engineering Measures
None under normal use conditions.

Personal protective equipment

Eye Protection
Goggles (European standard - EN 166)

Hand Protection
Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>See manufacturers</td>
<td></td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td>recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection
No protective equipment is needed under normal use conditions.

Large scale/emergency use
Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Particle filter
Small scale/Laboratory use

Maintain adequate ventilation

Recommended half mask: - Particle filtering: EN149:2001

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Light cream</td>
</tr>
<tr>
<td>Physical State</td>
<td>Powder Solid</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>4.0-7.0</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Softening Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity / Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>soluble</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

Stability

Hygroscopic. Light sensitive.

Hazardous Reactions

No information available.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to Avoid

Exposure to light. Incompatible products. Exposure to moist air or water. Avoid dust formation.

Materials to avoid

Strong oxidizing agents.

Hazardous Decomposition Products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information
(a) acute toxicity;  
Toxicology data for the components

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl pyrrolidone</td>
<td>LD50 = 100 g/kg (Rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) skin corrosion/irritation;  
No data available

(c) serious eye damage/irritation;  
No data available

(d) respiratory or skin sensitization;  
Respiratory: No data available  
Skin: No data available

(e) germ cell mutagenicity;  
No data available

(f) carcinogenicity;  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;  
No data available

(h) STOT-single exposure;  
No data available

(i) STOT-repeated exposure;  
Target Organs: None known.

(j) aspiration hazard;  
Not applicable

Solid

Other Adverse Effects
The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed  
No information available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects
Do not empty into drains.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
<th>Microtox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl pyrrolidone</td>
<td>LC50 &gt;1000 mg/L/96 H (Juvenile Turbot)</td>
<td>Water Flea</td>
<td>EC50 &gt;1000 mg/L/72 H (Marine Algae)</td>
<td>Microtox</td>
</tr>
</tbody>
</table>

Persistence and Degradability

Persistence  
Soluble in water, Persistence is unlikely, based on information available.

Bioaccumulative Potential
Bioaccumulation is unlikely

Mobility in soil
The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.
Polyvinylpyrrolidone, average M.W. 58,000

Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant
This product does not contain any known or suspected substance

Ozone Depletion Potential
This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues / Unused Products
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated Packaging
Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.

Other Information
Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport
Not Regulated

IMDG/IMO
Not regulated

IATA
Not regulated

Special Precautions for User
No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12268 - 2012</th>
<th>Taiwan Toxic Chemicals Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl pyrrolidone</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By
Health, Safety and Environmental Department

Creation Date
25-Oct-2014

Revision Date
15-Mar-2018

Revision Summary
Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
CAS - Chemical Abstracts Service
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Physical hazards On basis of test data
Health Hazards Calculation method
Environmental hazards Calculation method

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet