

## Safety Data Sheet

---

### 1. Identification

Product identifier	Shodex STANDARD P-82
Synonyms	P-800, P-400, P-200, P-100, P-50, P-20, P-10, P-5
Supplier (Manufacturer)	Resonac Corporation.
Address	Tokyo Shiodome Building, 1-9-1, Higashi-Shimbashi, Minato-ku, Tokyo 105-7325, Japan
Department	Functional Chemicals Business Unit, Functional Chemicals Division
Telephone	+81-3- 6263-8112
Email	rec_shodex@resonac.com
Emergency phone number	+65-3158-1074 (NCEC/ East/South Asia)
Recommended use and restriction on use	
Recommended use	Calibration standard for size exclusion chromatography
Importer (SINGAPORE)	Company name: Resonac Asia Pacific Pte. Ltd. 4 Shenton Way #16-02/06, SGX Centre 2, Singapore 068807 Tel : +65-6836 6988

---

### 2. Hazards identification

#### GHS classification

Reproductive toxicity Category 1B

#### GHS label elements including precautionary statements

Pictograms



Signal word

Danger

Hazard statements

H360 May damage fertility or the unborn child

Precautionary statements

Prevention

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

Response

P308+P313 IF exposed or concerned: Get medical advice/attention.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification: Not available

## Safety Data Sheet

---

### 3. Composition/information on ingredients

Substance/Mixture	Mixture		
Ingredients	Concentration or concentration range	CAS No.	EC No.
Pullulan	≥90%	9057-02-7	232-945-1
Water	<10%	7732-18-5	231-791-2
Methanol	<1%	67-56-1	200-659-6

### 4. First-aid measures

Description of necessary first aid measures

Inhalation	<p>In case of inhaling a large amount of dust, immediately move the victim to fresh air to rest and get medical advice/attention as needed.</p> <p>If vomiting occurs, turn the head to the side, and take care to prevent suffocation.</p>
Skin contact	<p>Thoroughly wash off with plenty of water or with soap as needed.</p> <p>If irritation occurs, get medical advice/attention as needed.</p>
Eye contact	<p>Immediately flush the eyes with clean running water for at least 15 minutes and get medical advice/attention.</p> <p>When washing the eyes, open the eyelids and move the eyeballs in all directions so that the water can be flushed to every corner of the eyeballs.</p>
Ingestion	<p>Wash mouth thoroughly with water and get medical advice/attention immediately.</p> <p>It is recommended to give plenty of water for drinking and induce vomiting if possible.</p>

Most important symptoms/effects, acute and delayed:

Not available

Indication of immediate medical attention and special treatment needed, if necessary:

Not available

### 5. Fire-fighting measures

Suitable extinguishing media	Spray water, foam, carbon dioxide, dry chemical.
Unsuitable extinguishing media	No information
Specific hazards arising from the chemical	There is a risk of ignition or explosion of dust.

## Safety Data Sheet

---

Special protective actions for fire fighters	<p>Extinguish the fire from the upwind direction in case that harmful gases are generated.</p> <p>Do not allow unauthorized persons to enter the area around the fire.</p> <p>Evacuate unrelated personnel to a safe area.</p> <p>If possible, remove container from fire.</p> <p>Avoid strong water injection to cause the spillage to spread.</p> <p>Surround fire-fighting wastewater by a dike for disposal.</p> <p>Wear appropriate protective equipment.</p> <p>Wear respiratory protective equipment in case that harmful gases are generated.</p>
--	---

---

### 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Wear appropriate protective equipment during working.
Environmental precautions	Take care to prevent the spillage from being discharged into rivers and other environmental impacts.
Methods and materials for containment and cleaning up	<p>Immediately eliminate nearby ignition sources and hot objects.</p> <p>Sweep up the spillage and recover it into a sealed container.</p> <p>Prohibit unauthorized personnel from approaching.</p>
Prevention measures for secondary disaster	Prepare an appropriate fire extinguisher in case of a fire.

---

### 7. Handling and storage

Precautions for safe handling	<p>Wear appropriate protective equipment during handling to prevent inhalation and avoid contact with eyes, skin and clothing.</p> <p>Wash hands and face etc. thoroughly after handling.</p> <p>Avoid exposure to strong oxidants.</p> <p>Use explosion-proof equipment and pay full attention to avoid dust scattering.</p> <p>Grounding to prevent static electricity (which is easily charged).</p> <p>Operation and disposal should be carried out in places with local exhaust ventilation.</p>
Conditions for safe storage, including any incompatibilities	<p>Store in a cool and well-ventilated place.</p> <p>Avoid humidity, high temperature and direct sunlight.</p>

## Safety Data Sheet

---

Keep container tightly closed.  
 Avoid accumulation of static electricity by appropriate grounding.  
 Use explosion-proof electrical/ventilating/lighting equipment.

---

### 8. Exposure controls/personal protection

Control Parameters/Occupational Exposure Limits

Singapore

Methanol PEL(Long Term) 200ppm, 262mg/m<sup>3</sup>

Methanol PEL(Short Term) 250ppm, 328mg/m<sup>3</sup>

ACGIH

Methanol TWA 200ppm STEL 250ppm (Skin)

Biological Limit

ACGIH

Ingredients	Determinant	Sampling Time	BEI
Methanol	Methanol in urine	End of shift	15mg/L (B);(Ns)

Appropriate engineering control measures Seal the equipment as far as possible or set up local exhaust ventilation system to avoid direct exposure of operators.  
 Eye-washing and shower equipment should be installed near the workplace.

Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection Wear dust masks or simple dust masks, etc. according to the situation.

Hand protection Wear rubber gloves, etc.

Eye protection Wear safety glasses (with side shields), protective glasses (goggle type), protective masks according to the situation.

Skin and body protection Wear protective clothing, and wear aprons, boots, etc. according to the situation.

Other protection Wash contaminated clothing before reuse.  
 Wash hands thoroughly after handling.

---

### 9. Physical and chemical properties

Appearance (physical state, colour etc)	White solid powder
Odour	Odourless
pH	Not available
Melting point/freezing point	Melting point: None

## Safety Data Sheet

---

Initial boiling point and boiling range	Boiling point: None
Flash point	> 55°C (Estimated value)
Upper/lower flammability or explosive Limits	Upper: Not available; Lower: Not available
Vapour pressure	Not available
Vapour density	Not available
Density and/or relative density	Not available
Solubility	Can be diluted with water.
Partition coefficient: n-octanol/water	Insoluble
Auto-ignition temperature	Approx. 280°C
Decomposition temperature	Not available
Odour threshold	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Viscosity	Not available

---

### 10. Stability and reactivity

Reactivity	Take care not to contact with oxidants.
Chemical stability	Stable under room temperature.
Possibility of hazardous reactions	Not available
Conditions to avoid	Intense heat, sparks and open flames.
Incompatible materials	Oxidant.
Hazardous decomposition products	Not available

---

### 11. Toxicological information

Acute toxicity	
Oral:	Product: Not classified Pullulan: Mouse LD <sub>50</sub> >14.28 g/kg (SDS of other companies) Methanol: Rat LD <sub>50</sub> =6.2~13 g/kg (ACGIH), 6200 mg/kg, 9100mg/kg (SIDS) Human LD=0.3~1 g/kg (SIDS), Human LD <sub>50</sub> =1400 mg/kg (DFGMAK)
Dermal:	Product: Not classified Methanol:

## Safety Data Sheet

---

Inhalation:	<p>Rabbit LD<sub>50</sub>=15800 mg/kg (DFGMAK),          Monkey LD=1600~4000 mg/kg (SIDS)          Product: Not classified          Methanol:          Rat LC<sub>50</sub> (8hr)&gt;22500 ppm (DFGMAK),          Monkey LC=(14hr) ≥ 52 mg/L, LC(18hr) ≥ 13 mg/L (SIDS)</p>
Skin corrosion/irritation	<p>Product: Not classified          Methanol:          Rabbit, Skin irritation test (20 hours): No irritation (DFGMAK)          Rabbit, Skin irritation test (24 hours): Moderate irritation (Effect of degreasing) (DFGMAK)</p>
Serious eye damage/irritation	<p>Product: Not classified          Methanol:          Rabbit, Eye irritation test (Draize test): Conjunctivitis or conjunctival edema (recovery or not within 7 days is unknown ) (EHC)          Rabbit, Eye irritation test: Moderate irritation (EHC)</p>
Respiratory sensitisation	<p>Product: Classification not possible</p>
Skin sensitisation	<p>Product: Not classified          Methanol:          Guinea pig, Skin sensitization test: No sensitization (EHC)          Human patch test: Positive (Cannot be concluded that methanol will cause sensitization.) (DFGMAK)</p>
Germ cell mutagenicity	<p>Product: Not classified          Pullulan:          Salmonella Ames test: Negative (CCRIS)          Bacillus subtilis DNA repair test: Positive (RTECS)          Methanol:          Mouse chromosomal aberration test/Sister chromatid exchange test/Micronucleus test (inhalation exposure): negative (DFGMAK)          Mouse micronucleus test (Intraperitoneal administration): negative (DFGMAK)          Salmonella/Escherichia coli Ames test: negative (DFGMAK)</p>
Carcinogenicity	<p>Product: Not classified          Pullulan:          Rat 62-week feeding test: No toxic effect</p>

## Safety Data Sheet

---

	<p>NOAEL: (male)&gt; 4450 mg/kg/day, (female)&gt; 5080 mg/kg/day (CCRIS)</p> <p>Methanol:</p> <p>Rat, Drinking water administration test, 500~20000 ppmv/v: carcinomas of the head and neck, hemolymphoreticular neoplasms(ACGIH)</p> <p>Rat/mouse/monkey, 18 or 24 months inhalation exposure test up to 1000 ppm: non-carcinogenic (ACGIH)</p>
Reproductive toxicity	<p>Product: May damage fertility or the unborn child</p> <p>Methanol:</p> <p>In a test by inhalation exposure to pregnant mice during organogenesis period with 6500 mg/m<sup>3</sup> or more: fetal resorptions and exencephaly, fetal malformations (nerve and eye abnormalities, cleft palate, hydronephrosis and limb abnormalities) (EHC)</p> <p>Inhalation exposure test for rats at 7-15 days gestation, 26000 mg/m<sup>3</sup>: Malformation in fetus (extra cervical ribs or rudimentary cervical ribs and urinary or cardiovascular abnormalities), NOAEL = 6500 mg/m<sup>3</sup> (EHC)</p>
Specific target organ toxicity (Single exposure)	<p>Product: Not classified</p> <p>Methanol:</p> <p>Human acute poisoning symptoms: Central nervous system depression, metabolic acidosis, visual impairment, blindness, headache, vomiting, tachypnea, coma, etc., sometimes death (EHC)</p> <p>Central nervous system disorders, necrosis in the white substance of the brain (EHC)</p> <p>Mouse / rat inhalation exposure test: Narcotic effects (EHC)</p>
Specific target organ toxicity (Repeated exposure)	<p>Product: Not classified</p> <p>Pullulan:</p> <p>Rat 90-day oral administration test: No toxic effect (SDS of other companies)</p> <p>Rat 14-month oral administration test: No toxic effects (SDS of other companies)</p> <p>Methanol:</p> <p>Human, Long-term exposure at low concentration: broad range of ocular effects (EHC)</p> <p>Chronic toxicity effects of occupational exposure: Blindness (ACGIH)</p> <p>Chronic poisoning patient (exposure to vapours): Conjunctival oedema,</p>

---

## Safety Data Sheet

---

	headache, dizziness, insomnia, stomach disorder, blindness of both eyes (ACGIH)
Aspiration hazard	Rat, Oral administration test: hepatocellular hypertrophy, etc. (PATTY) Product: Classification not possible

---

### 12. Ecological information

Toxicity	Product: Hazardous to the aquatic environment – acute hazard: Not classified Hazardous to the aquatic environment – chronic hazard: Not classified Methanol: Fish (Bluegill) LC <sub>50</sub> (96hr)=15400 mg/L (SIDS) Fish (Fathead Minnows) LC <sub>50</sub> (96hr)=28200 mg/L (SIDS) Crustacean (Brine shrimp) EC <sub>50</sub> (96hr)=1340 mg/L (EHC) Crustacean (Brine shrimp) EC <sub>50</sub> (24hr)=900.73 mg/L (EHC)
Persistence and degradability	Pullulan: Good degradability (SDS of other companies) Methanol: Degradability Test (2 weeks): Good degradability (Data of Existing Chemicals)
Bioaccumulative potential	Methanol: BCF=0.01~0.51, 0.2 (Calculation value) (EHC)
Mobility in soil	Methanol: Koc=1 (Estimated value) (SIDS)
Other adverse effects	Hazardous to the ozone layer: Classification not possible

---

### 13. Disposal considerations

- Disposal methods:
- Waste disposal of chemicals:
- Dispose in compliance with relevant laws and regulations.
- Entrust waste disposal to an industrial waste processor licensed by the local government in accordance with related regulations and standards.
- Waste disposal of contaminated packaging:
- Empty containers should be disposed of after the contents are completely removed.
-



---

## Safety Data Sheet

---

### 14. Transport information

UN number	Not applicable
UN proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Packing group	Not applicable
Marine pollutant (Yes/No)	No
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	Not applicable
Special precautions	Not available

---

### 15. Regulatory information

Fire Safety (Petroleum and Flammable Materials) Regulations: Methanol

Workplace Safety and Health Act: Applicable

Workplace Safety and Health (General Provisions) Regulation: Methanol

---

### 16. Other information

Prepared in accordance with SS586: 2014

Abbreviations and acronyms:

TWA: Time Weighted Average

EHC: Environmental Health Criteria

DFG: Deutsche Forschungsgemeinschaft

BCF: Bioconcentration Factor

B: Background

STEL: Short Term Exposure Limits

SIDS: Screening Information Data Set

Ns: Nonspecific

EC<sub>50</sub>: Median Effective Concentration

LC<sub>50</sub>: Lethal Concentration 50 Percent Kill

LD<sub>50</sub>: Lethal Dose 50 Percent Kill

RTECS: Registry of Toxic Effects of Chemical Substances

ACGIH: American Conference of Governmental Industrial Hygienists

NOAEL: No Observed Adverse Effect Level

Skin: Danger of cutaneous absorption

PEL(Long Term): Permissible exposure level over an 8-hour working day and a 40-hour work week

## Safety Data Sheet

---

PEL(Short Term): Permissible exposure level over a 15-minute period during any working day

### Warranty

The information provided in this SDS are based on currently available materials, information, and other data, however, we cannot assume any liability for the accuracy of the information contained. All chemical products may have unknown, potentially hazardous characteristics. It is recommended that handling should be done with caution.

The sign "-" included in the above means no relevant information.

### Other information

This Safety Data Sheet applies to: Kit Components : P-800, P-400, P-200, P-100, P-50, P-20, P-10, P-5