### 1. Identification of the substance and of the company

**Product name**  
Hydroxyethyl starch

**Manufacturer / supplier identification**

| Company                  | PSS Polymer Standards Service GmbH  
|                         | In der Dalheimer Wiese 5  
|                         | D - 55023 Mainz |
| Technical Phone         | +49 6131 - 96239 - 0  
| Fax                     | +49 6131 - 96239 -11  
| Email                   | Info@polymer.de  
| Emergency Phone         | +49 6131 - 1924 - 0 |

### 2. Composition / information on ingredients

| CAS-No.:       | 9005-27-0 |
| EC No.:        | none     |
| Molecular formula: | -         |

### 3. Hazards identification

**SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT**

Not hazardous according to Directive 67/548/EEC.

### 4. First aid measures

**AFTER INHALATION**  
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

**AFTER SKIN CONTACT**  
In case of contact, immediately wash skin with soap and copious amounts of water.

**AFTER EYE CONTACT**  
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**AFTER INGESTION**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

### 5. Fire fighting measures

**EXTINGUISHING MEDIA**  
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

**SPECIAL RISKS**  
Specific Hazard(s): Emits toxic fumes under fire conditions.

**SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS**  
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### 6. Accidental release measures

**PROCEDURE(S) OF PERSONAL PRECAUTION(S)**  
Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.
METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7. Handling and storage

HANDLING
Directions for Safe Handling: Avoid inhalation. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.

STORAGE
Conditions of storage: Keep tightly closed.

8. Exposure controls / personal protection

ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Respiratory protection is not required. Where protection from nuisance levels of dust are desired, use type N95 (US) or type P1 (EN143) dust masks.

HAND PROTECTION
Protective gloves.

EYE PROTECTION
Chemical safety goggles.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid</td>
</tr>
<tr>
<td>Colour</td>
<td>-</td>
</tr>
<tr>
<td>Form</td>
<td>-</td>
</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>BP/BP Range</td>
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<tr>
<td>Mp/Mp Range</td>
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</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Flammability</td>
<td>N/A</td>
</tr>
<tr>
<td>Autoignition Temp.</td>
<td>N/A</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
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</tr>
<tr>
<td>Explosive Properties</td>
<td>N/A</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>SG/Density</td>
<td>N/A</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>N/A</td>
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<tr>
<td>Viscosity</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Density</td>
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<tr>
<td>Saturated Vapor Conc.</td>
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</tr>
<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Bulk Density</td>
<td>N/A</td>
</tr>
<tr>
<td>Decomposition Temp.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
10. Stability and reactivity

STABILITY
Stable: stable
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Nature of decomposition products not known.

HAZARDOUS POLYMERIZATION
Will not occur.

11. Toxicological information

RTECS NUMBER: WI0410000

ACUTE TOXICITY
LD50
Oral
Rat
> 50000 mg/kg
LD50
Intraperitoneal
Rat
>300 mg/kg
LD50
Subcutaneous
Rat
>18 mg/kg
LD50
Intravenous
Rat
8280 mg/kg
LD50
Oral
Mouse
> 12000 mg/kg
LD50
Intraperitoneal
Mouse
>300 mg/kg
LD50
Subcutaneous
Mouse
>18 mg/kg
LD50
Intravenous
Mouse
20300 mg/kg

Remarks: Behavioral: Change in motor activity (specific assay).
LD50
Intravenous
Rabbit
8460 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE
- Skin contact: May cause skin irritation.
- Skin Absorption: May be harmful if absorbed through the skin.
- Eye Contact: May cause eye irritation.
- Inhalation: Material may be irritation to mucous membranes and upper respiratory tract. May be harmful if inhaled.
- Ingestion: May be harmful if swallowed.

CHRONIC EXPOSURE - TERATOGEN
- Species: Mouse
  - Dose: 675 mg/kg
  - Route of Application: Intravenous
  - Exposure Time: (8-16D PREG)
  - Result: Specific Developmental Abnormalities: Musculoskeletal system. Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord).
- Species: Rabbit
  - Dose: 200 mg/kg
  - Route of Application: Intravenous
  - Exposure Time: (8-17D PREG)
  - Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).
- Species: Rabbit
  - Dose: 100 mg/kg
  - Route of Application: Intravenous
  - Exposure Time: (8-17D PREG)
  - Result: Specific Developmental Abnormalities: Musculoskeletal system.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD
- Species: Rat
  - Dose: 300 mg/kg
  - Route of Application: Intraperitoneal
  - Exposure Time: (16-21D PREG)
- Species: Mouse
  - Dose: 420 mg/kg
  - Route of Application: Intravenous
  - Exposure Time: (7-13D PREG)
  - Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain).

12. Ecological information
No data available

13. Disposal considerations
SUBSTANCE DISPOSAL
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations.
### 14. Transport information

<table>
<thead>
<tr>
<th>RID/ADR</th>
<th>Non-hazardous for road transport.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMDG</td>
<td>Non-hazardous for sea transport.</td>
</tr>
<tr>
<td>IATA</td>
<td>Non-hazardous for air transport.</td>
</tr>
</tbody>
</table>

### 15. Regulatory information

Not hazardous according to Directive 67/548/EEC.
Caution: Substance not yet fully tested (EU).

<table>
<thead>
<tr>
<th>COUNTRY SPECIFIC INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>WGK: 2</td>
</tr>
<tr>
<td>Self-Classification</td>
</tr>
</tbody>
</table>

### 16. Other information

**WARRANTY**

The information in this document is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product. PSS GmbH shall not be held liable for any damage resulting from handling or from contact with the above product.

**DISCLAIMER**

For R&D use only. Not for drug, household or other uses.