SAFETY DATA SHEET
(according to (EC) 1907/2006)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
REILLEX™ 425 Polymer
Synonyms: REILLEX™ 425; REILLEX™ 402; REILLEX™ HP

1.2. Relevant identified uses of the substance or mixture and uses advised against
acid scavenger
metals recovery

1.3. Details of the supplier of the safety data sheet
Vertellus LLC
201 North Illinois Street, Suite 1800,
Indianapolis, IN 46204
800-223-0453
e-mail Address: msds@vertellus.com

1.4. Emergency telephone number
Vertellus: 1-800-223-0453
CHEMTREC (USA): 1-800-424-9300 (collect calls accepted); (Int'l): 1-703-527-3887 (collect calls accepted; 011 prefix not needed)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
(According to Regulation (EC) No 1272/2008)
Not classified as hazardous under this directive.

(According to Directive 67/548/EEC)
Symbol: Not classified as hazardous under this directive.
Risk Phrases: Not classified as hazardous under this directive.
Safety Phrases: Not classified as hazardous under this directive.

2.2. Label elements
Signal Word:
Not required.
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Hazard Precautions:
Not classified as hazardous under this directive.

Prevention Precautionary Statements:
Note: These precautionary statements are not prescribed by directive 1272/2008 as this product is not classified as hazardous under this directive. Wash hands thoroughly after handling with soap and water. Wear protective gloves, protective clothing, eye protection and face protection. If swallowed, in eyes, on skin or inhaled call a poison center or doctor/physician if you feel unwell. If inhaled, remove victim to fresh air and keep at rest in a comfortable position for breathing. Take off contaminated clothing before reuse. Store in a well-ventilated place. Keep container tightly closed.

First Aid Precautionary Statements:
Not required.

Storage Precautionary Statements:
Not required.

Disposal Precautionary Statements:
Not required.

2.3. Other hazards

Signs and Symptoms of Potential Overexposure:
Cross-linked Poly-4-Vinylpyridine polymers are not expected to cause irritation to skin or eyes, based on laboratory test results. Overexposure to dusty material may cause respiratory tract irritation in sensitive individuals. No skin sensitization was observed in laboratory tests. Although it has been observed that the health effects related to this compound are minimal, as with any chemical, use appropriate precautions during handling.

Primary Route(s) of Exposure:
Skin contact and absorption, eye contact, and inhalation. Ingestion is not likely to be a primary route of exposure.

Medical Conditions Aggravated by Exposure:
Persons with pre-existing skin, liver, or kidney disorders may be at increased risk from overexposure to this material. This is not likely to be a problem when appropriate procedures are used to minimize exposure.

SECTION 3: Composition/information on ingredients

3.1. Substances or 3.2. Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Concentration (%)</th>
<th>EINECS / ELINCS</th>
<th>CLP Inventory/ Annex VI</th>
<th>EU DSD Classification (67/548/EEC)</th>
<th>EU CLP Classification (1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly-4-Vinylpyridine, crosslinked with divinylbenzene</td>
<td>9017-40-7</td>
<td>~ 100 (may be water wet)</td>
<td>Not listed.</td>
<td>Not listed.</td>
<td>N/A Not applicable</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

NOTE: See Section 8 of this MSDS for exposure limit data for these ingredients.
See Section 15 of this MSDS for trade secret information (where applicable).
See Section 16 of this MSDS for the full text of the R-phrases above.
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SECTION 4: First aid measures

4.1. Description of first aid measures

Skin Contact: Wash exposed area twice with soap and water. The exposed area should be examined by medical personnel if irritation or pain persists after the area has been washed.

Eye Contact: Rinse eyes immediately with large amounts of water for at least 15 minutes, occasionally lifting the eyelids. GET MEDICAL ATTENTION.

Inhalation: Remove from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. Keep affected person warm and at rest. GET MEDICAL ATTENTION.

Ingestion: If swallowed, contact physician or poison control center immediately. Give oxygen if respiration is shallow. GET MEDICAL ATTENTION.

4.2. Most important symptoms and effects, both acute and delayed

Acute: Cross-linked Poly-4-Vinylpyridine polymers are not expected to cause irritation to skin or eyes, based on laboratory test results. Overexposure to dusty material may cause respiratory tract irritation in sensitive individuals. No skin sensitization was observed in laboratory tests. Although it has been observed that the health effects related to this compound are minimal, as with any chemical, use appropriate precautions during handling.

Delayed Effects: None known.

4.3. Indication of any immediate medical attention and special treatment needed

Thermal Exposure: Not applicable.

Note to Physician: No specific indications. Treatment should be based on the judgment of the physician in response to the reactions of the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Appropriate Extinguishing Media: Water spray, water fog, alcohol-resistant foam, carbon dioxide, dry chemical.

5.2. Special hazards arising from the substance or mixture

Hazardous Products of Combustion: Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

Potential for Dust Explosion: No data available

Special Flammability Hazards: Not applicable.

5.3. Advice for firefighters

Basic Fire Fighting Guidance: Wear self-contained breathing apparatus and full protective clothing (i.e., Bunker gear). Skin and eye contact should be avoided. Normal fire fighting procedures may be used.

Flammability Classification (OSHA): Non-flammable

NFPA Rating: 1 1 0
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuation Procedures: Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
Special Instructions: Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded. Not applicable.

6.2. Environmental precautions
Prevent releases to soils, drains, sewers, and waterways.

6.3. Methods and material for containment and cleaning up
Containment Techniques and Clean-up Procedures: Remove all ignition sources. Ventilate the area of spill or leak. Wear protective equipment during clean-up. Material can then be collected for later disposal. After collection of material, flush area with water. Dispose of the material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws.
Special Reporting Requirements: Not applicable.

6.4. Reference to other sections
Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for Unique Hazards: Not applicable.
Practices to Minimize Risk: Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material.
Special Handling Equipment: Not applicable.

7.2. Conditions for safe storage, including any incompatibilities
Storage Precautions & Recommendations: Maintain dry, ventilated conditions for storage. Protect containers against physical damage. Keep away from strong oxidizing agents.
Dangerous Incompatibility Reactions: Strong oxidizing agents
Incompatibilities with Materials of Construction: none known

7.3. Specific end use(s)
If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

SECTION 8: Exposure controls/personal protection
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8.1. Control parameters
Exposure Limits (United States): OSHA PEL: Not established ACGIH TLV: Not established

8.2. Exposure controls
Also see the annex to this SDS (if applicable) for specific exposure scenario controls.
Personal Protective Equipment: Where overexposures are a concern, use NIOSH-approved dust/mist respirator as necessary. Work uniforms or impervious clothing and boots. Latex rubber gloves are recommended where contact is likely.
Ventilation: All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided.
Other Engineering Controls: All appropriate engineering controls should be used to minimize exposure potential. Use exhaust ventilation to keep airborne concentrations below exposure limits.
Thermal Hazards: Not applicable.
Additive or Synergistic Effects: None known.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Appearance, State & Odor (ambient temperature): White to off-white small beads with no odor.
Molecular Formula: (C10H10.C7H7N)n Molecular Weight: No data available.
Vapor Pressure: No data available. Evaporation Rate: Not determined
Specific Gravity or Density: 1.000 Vapor Density (air = 1): Not applicable
Boiling Point: No data available. Freezing / Melting Point: No data available.
Solubility in Water: Insoluble Octanol / Water Coefficient: No data available.
pH: No data available. Odor Threshold: No data available.
Viscosity: No data available. Autoignition Temperature: Not available
Flash Point and Method: >300°F (>148°C) Tag Open Cup Flammable Limits: Not available (LEL) – Not available (UEL)

9.2. Other information
Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity
Not classified as dangerously reactive.

10.2. Chemical stability
Stable

10.3. Possibility of hazardous reactions
Will not occur.
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10.4. Conditions to avoid
Avoid static discharge and generation of dust.

10.5. Incompatible materials
Strong oxidizing agents

10.6. Hazardous decomposition products
Toxic vapors may be released upon thermal decomposition (cyanides, nitrogen oxides, carbon monoxide).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute Oral LD₅₀:
- Oral LD₅₀ (rat) > 5000 mg/kg
- Poly-4-Vinylpyridine, crosslinked with divinylbenzene

Acute Dermal LD₅₀:
- Dermal LD₅₀ (rabbit) > 2000 mg/kg
- Poly-4-Vinylpyridine, crosslinked with divinylbenzene

Acute Inhalation LC₅₀:
No data available.

Skin Irritation:
- Non-irritating to skin.

Skin Sensitization:
No data available.

Eye Irritation:
- Non-irritating to eyes.

Target Organs:
No data available.

Carcinogenicity:
- This material is not listed by IARC, NTP or OSHA as a carcinogen. No test data is available that indicates this material is a carcinogen.

Teratogenicity:
No data available.

Reproduction:
No data available.

Neurotoxicity:
No data available.

Mutagenicity:
No data available.

Additional Toxicity Information:
- Not a skin sensitizer in Buehler Topical Closed Patch Assay.

SECTION 12: Ecological information

12.1. Toxicity
No data available.

Poly-4-Vinylpyridine, crosslinked with divinylbenzene

12.2. Persistence and degradability
No data

12.3. Bioaccumulative potential
No data

12.4. Mobility in soil
No data

12.5. Results of PBT and vPvB assessment
No data available.

12.6. Other adverse effects
No data available.

Component Name:

German Water Hazard Classification:
No data available.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

US EPA Waste Number: Not applicable

Waste Classification: (per US regulations) Non-Hazardous The waste may be classified as "special" or hazardous per State regulations. NOTE: Generator is responsible for proper waste characterization. State (USA) hazardous waste regulations may differ substantially from federal (USA) regulations.

Waste Disposal: Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.

SECTION 14: Transport information

14.1. UN number Not applicable

14.2. UN proper shipping name Chemicals, n.o.s. (Poly-4-Vinylpyridine, crosslinked with divinylbenzene)

14.3. Transport hazard class(es) Not applicable

14.4. Packing group Not applicable

14.5. Environmental hazards Not applicable

14.6. Special precautions for user No data available.

NA Emergency Guidebook Numbers: Not applicable

IMDG EMS: Not applicable

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

OSHA Hazards: Health: Not applicable. Physical: Not applicable.

WHMIS Classification: This product is not classified as a controlled product under Canadian Controlled Products Regulations.

Chemical Inventory Lists:

TSCA: Yes
EINECS: Polymer, monomers listed
Canada(DSL/NDSL): DSL
Japan: 6-1463x
Korea: KE-13322
Australia: Not listed.
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New Zealand: Not listed.
China: Not listed.
Philippines: Not listed.
Switzerland: Not listed.

New Zealand GHS Classification: Not classified by this country.
Japan GHS Classification: Not classified by this country.
Korea (MOL) GHS Classification: Not classified by this country.
Australia GHS Classification: Not classified by this country.
Taiwan GHS Classification: Not classified by this country.
Indonesia GHS Classification: Not classified by this country.

SARA 313: Not listed.
Reportable Quantities: Not applicable
State Regulations: Not applicable.

Other Regulatory Listings: Not applicable.

15.2. Chemical safety assessment
Not applicable.

SECTION 16: Other information

Full text of R phrases in Section 3: Not applicable

Legend of abbreviations:
ACGIH = American Conference on Governmental Industrial Hygienists.
CAS = Chemical Abstracts Service.
DSL/NDSL = Domestic Substances List/Non-Domestic Substances List.
EC = European Community.
EEC = European Economic Community.
EINECS = European Inventory of Existing Commercial chemical Substances.
ELINCS = European List of Notified Chemical Substances.
EU = European Union.
GHS = Globally Harmonized System.
LC = Lethal concentration.
LD = Lethal dose.
MOL = Ministry of Labor.
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NEMA = National Emergency Management Agency.
NIOSH = National Institute of Occupational Safety and Health.
NTP = National Toxicological Program.
OSHA = Occupational Safety and Health Administration
PEL = Permissible exposure limit.
RQ = Reportable quantity.
TLV = Threshold limit value.
WHMIS = Workplace Hazardous Materials Information System.

Important Note: Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. The information contained herein may change without prior notice. THIS SAFETY DATA SHEET SUPERSEDES ALL PREVIOUS EDITIONS.

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