SECTION 1. MATERIAL AND MANUFACTURER IDENTIFICATION

Distributor: Protameen Chemicals, Inc.
Manufacturer: The Lubrizol Corporation
   9921 Brecksville Rd.
   Brecksville, OH 44141
Telephone: 212-447-5000
Emergency Telephone No.: CHEMTREC: 1-800-424-9300
Product Name: CARBOPOL 934 POLYMER
CAS Number: 9003-01-4
Generic Chemical Name: Polyacrylic Acid
Issue Date: October 26, 2009
Revision Date: April 13, 2015

SECTION 2. HAZARD IDENTIFICATION

Hazard Classification:
   Health Hazards
      Germ Cell Mutagenicity: Category B1
      Carcinogenicity: Category 1A
   Unknown Toxicity
      Acute Toxicity, Oral: 0.0%
      Acute Toxicity, Dermal: 0.0%
      Acute Toxicity, Inhalation, Vapor: 99.4%
      Acute Toxicity, Inhalation, Dust: 99.9%

OSHA Hazards: Combustible dust
Label Elements:

Hazard Symbol: Danger
Signal Word: Danger
Hazard Statement: May cause genetic defects.
                 May cause cancer.
                 May form combustible dust concentrations in air.

Precautionary Statement:
Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Prevent dust accumulation to minimize explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment.

Response: If exposed or concerned: Get medical advice/attention
Storage: Store locked up.

www.talasonline.com
330 Morgan Ave Brooklyn, NY 11211 | 212-219-0770 | info@talasonline.com
SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>0.1 – 0.5%</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General Information: If exposed or concerned: Get medical advice/attention.

Ingestion: Treat symptomatically. Get medical attention.

Inhalation: Remove exposed person to fresh air if adverse effects are observed. If breathing is labored, administer oxygen. If breathing has stopped, apply artificial respiration. If irritation persists or if toxic symptoms are observed, get medical attention.

Skin Contact: Wash with soap and water. If skin irritation occurs, get medical attention.

Eye Contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Water (moisture) swells this product into a gelatinous film which may be difficult to remove from the eye using only water. Immediately flush eyes with plenty of one percent (1%) physiological saline solution for five (5) minutes while holding eyelids open. If no saline is available, flush with plenty of clean water for fifteen (15) minutes. See a physician.

Most important symptoms/effects, acute and delayed:

Symptoms: Symptoms may be delayed

Indication of immediate medical attention and special treatment needed:

Treatment: Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

General Fire Hazards: Avoid hose stream or any method which will create dust clouds.

Suitable (and unsuitable) extinguishing media

Suitable: Use water spray, dry chemical or foam for extinction. CO2 may be ineffective on large fires.

Unsuitable: Not determined

Specific hazards arising from the chemical:
See Section 10 for additional information.
CARBOPOL 934 POLYMER
Safety Data Sheet
Product Code: 390
Revision Date: April 13, 2015

Special protective equipment and precautions for firefighters:

**Special procedures:** This material has been evaluated and is considered to be a risk for dust explosion. It is categorized as Dust Explosion Class ST1. Material can form an explosive organic dust air mixture. As with all organic dusts, fine particles suspended in air in critical proportions and in the presence of an ignition source may ignite and/or explode. Dust may be sensitive to ignition by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. This product has a high volume resistivity and a propensity to build up static electricity which may be discharged as a spark. A spark can be an ignition source for solvent vapor/air mixtures. As a precaution, implement standard safety measures for handling finely divided organic powders. If you add this product to a solvent, ensure appropriate safe handling practices such as provision for inerting flammable vapors. Take care to minimize airborne dust. Solid does not readily release flammable vapors.

**Special equipment:** Recommend wearing self-contained breathing apparatus.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures:**
Personal Protective Equipment must be worn, see Personal Protection (Section 8) for PPE recommendations.

**Methods and material for containment and cleaning up:**
Pick up free solid for recycle and/or disposal. Sweep up and place in a clearly labeled container for chemical waste. Avoid dust formation. Use wet sweeping compound or water to avoid raising dust. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. Wash spill area with detergent. Material is slippery when wet. Prevent entry into sewers and waterways, dispose of in accordance with all federal, state and local environmental regulation.

**Environmental Protection:**
Avoid release to the environment. Do not contaminate water sources or sewer. Environmental manager must be informed of all major spillages. Prevent further leakage or spillage if safe to do so. Prevent entry into sewers and waterways. Take precautions to avoid release to the environment.

**SECTION 7. HANDLING AND STORAGE**

**Handling:** Avoid conditions which create dust. Avoid breathing dust. Avoid contact with eyes and prolonged or repeated contact with skin. Ground container and transfer equipment to eliminate static electric sparks. Keep away from heat, sparks, and open flame. Avoid drinking, tasting, swallowing or ingesting this product.

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Observe good industrial hygiene practices. Provide adequate ventilation. Wear appropriate personal protective equipment as required. Launder contaminated clothing before reuse.

**Max. Handling Temp.:** Not determined

**Storage:** Store away from incompatible materials. See Section 10 for incompatible materials. Store in a dry, well-ventilated place. Keep containers closed when not in use

**Max. Storage Temp.:** < 80°C (< 176°F)
SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

Occupational Exposure Limits: None of the components have assigned exposure limits.

Other exposure limits:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyacrylic Acid</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>

Engineering Controls: To prevent dust explosions employ bonding and grounding for operations capable of generating static electricity. Minimize dust generation and accumulation. Provide adequate ventilation.

Individual protection measures, personal protective equipment:

General information: Use personal protective equipment as required.

Eye/face protection: Use tight fitting goggles if dust is generated. Wear approved chemical safety glasses or goggles when eye exposure is reasonably probable.

Hand protection: Chemical resistant rubber gloves. Use good industrial hygiene practices to avoid skin contact. If contact with the material may occur, wear chemically protective gloves.

Body protection: Long sleeve shirt is recommended.

Respiratory protection: Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator. Under normal use conditions, respirator is not usually required. Use appropriate respiratory protection if exposure to dust particles, mist or vapors is likely.

Hygiene measures: Wash thoroughly after handling. Always observe good personal hygiene measures such as washing after handling the material and before eating, drinking and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance:</th>
<th>Solid, White, Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>Slight Acetic</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>No data available</td>
</tr>
<tr>
<td>pH:</td>
<td>2.5 – 3.0 (1% Water)</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability:</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative Density:</td>
<td>1.4 @ 20°C (68°F)</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Material will swell in water</td>
</tr>
<tr>
<td>Partition coefficient:</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition Temp.:</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomp. Temp.:</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Bulk Density: 0.24 g/mL @ 25°C (77°F)
Dust Explosion: 157 – 193 m.b./s
Min. Ignition Energy: 25 – 50 mJ
Min. Ignition Temp.: ~ 480°C (896°F)
Percent Solid: 98% (by weight)
Max. Rate of Pressure: 5500 ps/s (0.5oz/ft²)
Volume Resistivity: 1.84x10+16 ohm-cm
Percent Volatile: 2% (by weight)
SECTION 10. STABILITY AND REACTIVITY

Stability: This product is stable under normal conditions.

Reactivity: No data available

Incompatible Materials: Strong bases. Heat may be generated if polymer comes in contact with strong basic materials like ammonia, sodium hydroxide or strong basic amines.


Hazardous Decomposition: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

SECTION 11. TOXICOLOGICAL INFORMATION

Routes of Exposure:
- Inhalation: No data available
- Ingestion: No data available
- Skin Contact: No data available
- Eye Contact: No data available

Toxicological Effects:
Acute Toxicity:
- Oral: Not classified for acute toxicity based on available data.
- Dermal: Not classified for acute toxicity based on available data.
- Inhalation: Avoid inhalation of dust. Animal studies indicate the inhalation of respirablepolyacrylate dust may cause inflammatory changes in the lung. Persons with sensitive airways (eg. asthmatics) may react to vapors. Breathing dust may cause coughing, mucous production, and shortness of breath. Not classified for acute toxicity based on available data.

Skin Irritation: Classification: Not irritating; Rabbit
Remarks: Pre-existing skin conditions may be aggravated by prolonged or repeated exposure. Contact dermatitis may occur in sensitive individuals under extreme and unusual conditions of prolonged and repeated contact, such as high exposure accompanied by elevated temperatures and occlusion by clothing. This effect may be the results of the products hygroscopic properties, abrasion, or pH. Not classified as a primary skin irritant.

Eye Irritation: Classification: Not irritating; Rabbit
Remarks: Particles in eyes may cause irritating and smarting. Not classified as primary eye irritant.

Respiratory Sensitization: No data available
CARBOPOL 934 POLYMER
Safety Data Sheet
Product Code: 390
Revision Date: April 13, 2015

Protameen Chemicals Inc.
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Totowa, NJ 07511
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(973) 256-6764 FAX
www.protameen.com

Skin Sensitization:
Product: Classification: Not a skin sensitizer.
Benzene: Classification: Not a skin sensitizer. (Literature)

Specific Organ Toxicity:
Product: No data available
Benzene: Nose, throat and lung irritant

Aspiration Hazard:
Other Effects: No data available
Product: This material readily absorbs moisture and may become thick and gelatinous upon contact with mucous membranes of the eye, or upon inhalation into the nasal passages.

Chronic Effects:
Carcinogenicity:
Benzene: IARC 1: Carcinogenic to humans.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
Benzene: Overall evaluation: 1. Carcinogenic to humans.

US National Toxicology Program (NTP) Report on Carcinogens:
Benzene: Known To Be Human Carcinogen.

Benzene: Cancer

Germ Cell Mutagenicity:
Benzene: In vitro mutagenicity testing have yielded mixed results.
Benzene: Mutagenic in vivo in both somatic cells and germ cells.

Reproductive Toxicity:
No data available

Specific Target Organ Toxicity – Repeated Exposure:
Product: A two-year inhalation study in rats exposed to a respirable, water-absorbent sodium polycrylate dust resulted in lung effects such as inflammation, hyperplasia, and tumors. There were no observed adverse effects at exposures of 0.05 mg/m3. In addition, long-term medical monitoring of potentially exposed workers has not revealed lung effects such as those observed in the rat. However, the inhalation of respirable dusts should be avoided by implementing respiratory protection measures and observing the recommended permissible exposure limit of 0.05 mg/m3.
SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

<table>
<thead>
<tr>
<th>Species</th>
<th>Specific</th>
<th>Test Type</th>
<th>Exposure Time</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish – Bluegill Sunfish</td>
<td>Product</td>
<td>LC 50</td>
<td>96 h</td>
<td>580 mg/l</td>
</tr>
<tr>
<td>Fish – Bluegill Sunfish</td>
<td>Benzene</td>
<td>LC 50</td>
<td>4 d</td>
<td>22 mg/l</td>
</tr>
<tr>
<td>Fish – Rainbow Trout</td>
<td>Benzene</td>
<td>LC 50</td>
<td>4 d</td>
<td>5.3 mg/l</td>
</tr>
<tr>
<td>Fish – Fathead Minnow</td>
<td>Benzene</td>
<td>LC 50</td>
<td>32 d</td>
<td>&gt; 1.6 mg/l</td>
</tr>
<tr>
<td>Aquatic Invertebrates – Water Flea</td>
<td>Product</td>
<td>EC 50</td>
<td>48 h</td>
<td>174 mg/l</td>
</tr>
<tr>
<td>(Daphnia magna)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic Invertebrates – Water Flea</td>
<td>Benzene</td>
<td>EC 50</td>
<td>2 d</td>
<td>10 mg/l</td>
</tr>
<tr>
<td>(Daphnia magna)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic Plants – Green algae</td>
<td>Benzene</td>
<td>EC 50</td>
<td>3 d</td>
<td>100 mg/l</td>
</tr>
<tr>
<td>(Selenastrum capricornutum)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microorganisms – Bacteria</td>
<td>Benzene</td>
<td>EC 50</td>
<td>1 d</td>
<td>13 mg/l</td>
</tr>
</tbody>
</table>

Soil Dwelling Organisms: No data available
Sediment: No data available
Terrestrial Plants: No data available
Above-Ground Organisms: No data available

Persistence: Benzene: OECD TG 301 F, 96%, 28 d; Readily biodegradable

Bioaccumulation: No data available

Partition Coefficient, n-octanol/water (log Kow): Benzene: Log Kow: 2.13 (Calculated)

Mobility: No data available

Other Adverse Effects: No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal: Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Dispose of packaging or containers in accordance with local, regional, national and international regulations. Empty container contains product residue which may exhibit hazards of product.

Contaminated Packaging: Container packaging may exhibit hazards.
SECTION 14. TRANSPORT INFORMATION

DOT:
- UN Number: UN 3077
- UN Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Benzene)
- Transport Hazard Class: 9
- Class: 9
- Label: III
- Marine Pollutant: Yes
- Special Precautions: None established
- Reportable Quantity: Benzene, 10 lbs

IATA: Not regulated
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: None known

Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material. Review classification requirement before shipping materials at elevated temperatures.

SECTION 15. REGULATORY INFORMATION

US Federal Regulations
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities

Superfund Amendments and Reauthorization Act of 1986 (SARA)
- Hazard categories: Chronic (Delayed)

SARA 302 Extremely Hazardous Substance
SARA 304 Emergency Release Notification
SARA 311/312 Hazardous Chemicals
SARA 313 (TRI Reporting)
This product may contain chemicals regulated under the Superfund Amendments and Reauthorization Act (SARA). For additional information, please contact Lubrizol Customer Assistance:
- Americas: AmerLZAMCustomerAssistance@Lubrizol.com
- Europe: EMEAIcustomerAssistance@Lubrizol.com
- Asia: APCustomerAssistance@Lubrizol.com

US State Regulations
US California Proposition 65
This product may contain chemicals known to the state of California to cause cancer and/or birth defects. For additional information, please contact Lubrizol Customer Assistance:
- Americas: AmerLZAMCustomerAssistance@Lubrizol.com
- Europe: EMEAIcustomerAssistance@Lubrizol.com
- Asia: APCustomerAssistance@Lubrizol.com
Inventory Status

Australia (AICS)  All components are in compliance with chemical notification requirements in Australia.
Canada (DSL/NDSL) All components are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List.
China (IECSC) All components are listed on the Inventory of Existing Chemical Substances in China.
European Union (REACH) To obtain information on the REACH compliance status of this product, please visit Lubrizol.com/REACH or emails us at: REACH_MSDS_INQUIRIES@Lubrizol.com
Japan (ENCS) All components are in compliance with the Chemical Substances Control Law of Japan.
Korea (ECL) All components are in compliance in Korea.
New Zealand (NZIoC) All components are in compliance with chemical notification requirements in New Zealand.
Philippines (PICCS) All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (RA 6969).
Switzerland (SWISS) All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.
Taiwan (TCSCA) All components of this product are listed on the Taiwan inventory.
United States (TSCA) All components of this material are on the US TSCA Inventory.

The information that was used to confirm the compliance status of this product may deviate from the chemical information shown in Section 3.

SECTION 16. OTHER INFORMATION

HMIS Labeling:
Health: 1
Flammability: 1
Physical Hazards: 0

NFPA Hazard ID:
Health: 1
Flammability: 1
Reactivity: 0

History:
Issue Date: October 26, 2009
Revision Date: April 13, 2015

Protameen Chemicals, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. Protameen Chemicals, Inc. makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, Protameen Chemicals, Inc. will not be responsible for damages resulting from use of or reliance upon this information.