

## Material Safety Data Sheet

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** NR-4 (NH<sub>4</sub>) Ion Exchange Resin

**Part Number:** multiple

**Chemical Family:** cation exchange polymer

**Manufacturer's Name:** Siemens Industry, Inc. - Water Technologies Business Unit

**Address:** 4669 Shepherd Trail, Rockford, IL 61103

**Product/Technical Information Phone Number:** (815) 877-3041

**Medical/Handling Emergency Phone Number:** Call CHEMTREC at 800/424-9300  
24 hours a day

**Transportation Emergency Phone Number:** Call CHEMTREC at 800/424-9300  
24 hours a day

**Issue Date:** July 2007

**Revision Date/Revision Number:** April 2011/ Rev 1

### SECTION 2 – COMPOSITION INFORMATION

<u>Chemical Name</u>	<u>% By Weight</u>	<u>CAS #</u>
Sulfonated copolymer of styrene and divinylbenzene in ammonium form	40 – 70	069011-21-8
Water	30 - 60	007732-18-5

### SECTION 3 – HAZARDS IDENTIFICATION

**Appearance & Odor:** Spherical beads/Odorless to slight amine odor

#### Emergency Overview:

- ♦ May cause eye and skin irritation.
- ♦ May cause toxic fumes/vapors if burned.
- ♦ May react violently when exposed to oxidizing agents such as Nitric Acid (HNO<sub>3</sub>).

**Fire & Explosion Hazards:** This material will not burn until moisture is removed, then resin starts to burn in flame at 230<sup>0</sup> C. Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Nitric acid and other strong oxidizing agents can cause explosive-type reactions when mixed with ion exchange resins. Proper design of equipment to prevent build up of pressure is necessary if use of an oxidizing agent such as nitric acid is contemplated.

**Primary Route(s) of Exposure:** skin and eye contact

**Inhalation – Acute Effects:** Vapors are unlikely due to physical properties.

**Skin Contact – Acute Effects:** Skin contact may cause mild irritation and redness.

**Eye Contact – Acute Effects:** May cause severe eye irritation and redness. May cause moderate corneal injury. Effects are likely to heal.

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**Ingestion – Acute Effects:** Single dose oral toxicity is considered to be low. No hazards anticipated from swallowing small amounts incidental to normal handling operation. Swallowing large amounts may cause irritation to the gastrointestinal tract.

### SECTION 4 – FIRST AID MEASURES

**Inhalation First Aid:** Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped and give CPR ONLY if there is no breathing and no pulse. Obtain medical attention. No adverse effects anticipated by this route of exposure.

**Skin Contact First Aid:** Immediately remove clothing from affected area and wash skin vigorously with flowing water. Clothing should be washed before reuse. Seek medical attention if irritation occurs. DO NOT instruct person to neutralize affected skin area.

**Eye Contact First Aid:** Immediately irrigate eyes with flowing water continuously for 15 minutes while holding eyes open. Contacts should be removed before or during flushing. Obtain medical attention. DO NOT instruct person to neutralize.

**Ingestion First Aid:** No adverse effects anticipated by this route of exposure incidental to proper industrial handling. If ingestion does occur, if victim is alert and not convulsing rinse mouth with water and give plenty of water to drink. If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water to drink. Obtain medical attention.

**Medical Conditions Aggravated:** There are no known conditions aggravated by exposure.

**Note to Physician:** No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

### SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point/Method:** N/A

**Auto Ignition Temperature:** Above 500<sup>0</sup> C (900<sup>0</sup> F)

**Upper/Lower Explosion Limits:** N/A

**Extinguishing Media:** Water, carbon dioxide, dry chemical

**Fire Fighting Procedures:** Keep people away. Isolate fire area and deny unnecessary entry. Cool surrounding area with water to localize fire zone. Soak thoroughly with water to cool and prevent reignition.

**Fire-Fighting Equipment:** NIOSH approved positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots and gloves). If protective equipment is not available or not used, fight fire from a protected location or a safe distance.

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**Hazardous Products of Decomposition and/or Combustion:** May include but not limited to hydrocarbons, sulfur oxides, organic sulfonates, carbon monoxide, carbon dioxide and benzene compounds.

**NFPA Ratings:**

HEALTH- 1    FLAMMABILITY- 1    REACTIVITY- 1    OTHER- none

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Spill/Leak Procedures:** Isolate spill area to prevent falls as material can be a slipping hazard. Avoid contact with eyes and skin. Material is heavier than water and has limited water solubility. It will collect on the lowest surface.

**Cleanup:** Clean up floor area. Sweep up. Avoid generation of dust.

**Regulatory Requirements:** Follow all applicable Federal, State, Local, or Provincial regulations.

**Disposal:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State, Local and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

### SECTION 7 – HANDLING AND STORAGE

**Handling:** Practice reasonable care and caution. Metal equipment should be compatible with feed, regenerant, resin form and effluent of that process.

**Storage:** Keep containers tightly closed when not in use. Store between 2<sup>0</sup> - 38<sup>0</sup> C (35<sup>0</sup> - 100<sup>0</sup>F).

**General Comments:** Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

### SECTION 8 –PERSONAL PROTECTION/ EXPOSURE CONTROL

**Respiratory Protection:** No respiratory protection should be needed.

**Skin Protection:** Wear gloves impervious to this material to prevent skin contact.

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**Eye Protection:** Wear protective eyeglasses or chemical safety goggles. Contact lenses are not eye protective devices. Appropriate eye protecting must be worn instead of, or in conjunction with contact lenses.

**Ventilation Protection:** Good general ventilation should be sufficient.

**Other Protection:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gently flow of cool to tepid tap water, should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

**Exposure Limits:**

Exposure limits have not been developed.

### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odor:** Spherical beads/Odorless to slight amine odor

**Vapor Pressure:** N/A\*

**Vapor Density (Air=1):** N/A

**Boiling Point:** N/A

**Melting Point:** N/A

**Specific Gravity:** N/D\*\*

**Solubility in Water:** Insoluble

**Volatile Percentage:** N/A

**pH:** N/A

**Flash Point/method:** N/A

**Auto Ignition Temperature:** Above 500<sup>0</sup> C (900<sup>0</sup> F)

**Upper/Lower Explosion Limits:** N/A

**Other:** N/D

\*N/A=Not applicable

\*\*N/D=Not determined

### SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable under normal handling and storage conditions.

**Incompatibilities:** Oxidizing agents such as nitric acid attack organic ion exchange under certain conditions and could result is slightly degraded resin up to an explosive reaction. Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

**Polymerization:** Hazardous polymerization cannot occur.

**Decomposition:** Hazardous decomposition products depend upon temperature, air supply, and the presence of other materials. Hazardous decomposition products may include and are not limited to: aromatic compounds, hydrocarbons, organic sulfonates, sulfur oxides.

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**Conditions to Avoid:** Resin can decompose at temperatures greater than 90<sup>0</sup> C (194<sup>0</sup> F). Do not pack column with dry ion exchange resins. Dry beads expand when wet. This expansion can cause a glass column to shatter.

### SECTION 11 – TOXICOLOGICAL INFORMATION

**Inhalation – Acute:** Vapors are unlikely due to physical properties.

**Inhalation – Chronic:** There are no known chronic inhalation effects.

**Skin Contact – Acute:** Skin contact may cause mild irritation and redness.

**Skin Contact – Chronic:** There are no known chronic dermal effects.

**Eye Contact – Acute:** May cause severe eye irritation and redness. May cause moderate corneal injury. Effects are likely to heal.

**Ingestion – Acute:** Single dose oral toxicity is considered to be low. No hazards anticipated from swallowing small amounts incidental to normal handling operation. Swallowing large amounts may cause irritation to the gastrointestinal tract. Swallowing extremely large amounts may produce gastrointestinal disturbances.

**Ingestion – Chronic:** There are no known chronic ingestion effects.

**Carcinogenicity/Mutagenicity:** There are no known carcinogenic/mutagenic effects.

**Reproductive Effects:** There are no known reproductive effects.

**Neurotoxicity:** There are no known neurotoxic effects.

**Other Effects:** There are no other known toxic effects.

**Target Organs:** Target organs include the eyes and skin.

### SECTION 12 – ECOLOGICAL INFORMATION

The environmental fate and ecological toxicity are not known.

### SECTION 13 – DISPOSAL CONSIDERATIONS

**Spill/Leak Procedures:** Isolate spill area to prevent falls as material can be a slipping hazard. Avoid contact with eyes and skin. Material is heavier than water and has limited water solubility. It will collect on the lowest surface.

**Cleanup:** Clean up floor area. Sweep up. Avoid generation of dust.

**Regulatory Requirements:** Follow all applicable Federal, State, Local, or Provincial regulations.

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**Disposal:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State Local and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

### SECTION 14 – TRANSPORTATION INFORMATION

**DOT Shipping Description:** This product is not regulated by DOT when shipped domestically by land.

**Canadian TDG Information:** For TDG regulatory information, if required, consult transportation regulations, or product shipping.

### SECTION 15 – REGULATORY INFORMATION

#### US Regulations:

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SRA Title III) and is considered, under applicable definitions, to meet the following categories: An immediate health hazard

**TSCA Considerations:** Every different salt or ionic form of an ion exchange resin is a separate chemical. If you use an ion exchange resin for ion exchange purposes and then remove the by-product resin from its vessel or container prior to recovery of the original or another form of the resin or of another chemical, the by-product resin must be listed on the TSCA Inventory (Unless an exemption is applicable). It is the responsibility of the customer to ensure that such isolated, recycled by-product resins are in compliance with TSCA. Failure to comply could result in substantial civil or criminal penalties being assessed by the EPA.

**State Regulations:** Consult individual state agency for further information.

#### Canadian Regulations:

**WHMIS INFORMATION:** The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is: D2B - eye or skin irritant. Refer elsewhere in the MSDS for specific warnings and safe handling information.

**CPR Statement:** This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

### SECTION 16 – OTHER INFORMATION

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.

**Revision Indicator:** April 2011, Revised Section 1 (Updated manufacturer's name)