

## Material Safety Data Sheet

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** ACTIVATED CARBON, PAC-KICuCl IMPREGNATED

**Part Number:** 105                      **Chemical Family:** carbon

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

**Address:** 14250 Gannet Street, La Mirada, CA 90638

**Product/Technical Information Phone Number:** (714) 228 - 8800

**Medical/Handling Emergency Phone Number:** CHEMTREC 1-800-424-9300  
24 hours a day

**Transportation Emergency Phone Number:** CHEMTREC 1-800-424-9300  
24 hours a day

**Revision Date/Revision Number:** April 2011/ Rev 7

### SECTION 2 – COMPOSITION INFORMATION

<u>Chemical Name</u>	<u>Percent by Weight</u>	<u>CAS#</u>
Powdered Activated Carbon	25-40	7440-44-0
Potassium Iodide	<8	7681-11-0
Iodine	<8	7553-56-2
Lime (>95% as Ca(OH) <sub>2</sub> , <2.5% as Mg(OH) <sub>2</sub> )	45-50	1305-62-0
Cupric Chloride Dihydrate	<10	10125-13-0

### SECTION 3 – HAZARDS IDENTIFICATION

**Appearance & Odor:** black granules without taste or odor

**Emergency Overview:** Product is irritating to the skin, eyes, respiratory tract and gastrointestinal tract. Warning: Wet activated carbon depletes oxygen from the air and therefore dangerously low levels of oxygen may be encountered. Whenever workers enter a vessel containing activated carbon, the vessel's oxygen content should be determined and work procedures for potentially low oxygen areas should be followed.

**Fire & Explosion Hazards:** When burned, hazardous products of combustion including carbon oxides can occur. Irritating and/or toxic gases due to decomposition of the product may be generated during a fire. Fight fire from a safe distance from a protected location. Contact with strong oxidizers may cause rapid combustion.

**Primary Route(s) of Exposure:** Eye contact, skin contact, ingestion, or inhalation are all possible routes of entry.

**Inhalation – Acute Effects:** Dust may be irritating to the respiratory tract and cause coughing, sneezing, sore throat and shortness of breath.

**Skin Contact – Acute Effects:** Dust may cause skin irritation with redness, pain, roughness, dry skin and blisters.

**Eye Contact – Acute Effects:** Dust that contacts eyes may be irritating or cause mechanical injury with redness, pain and blurred vision. Calcium hydroxide in various forms is one of the

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most common causes of severe chemical burns of the eye, most commonly known as “lime burns”.

**Ingestion – Acute Effects:** Ingestion of powder may be irritating to the gastrointestinal tract and may cause burning pain in the mouth and esophagus, cramps and vomiting. Lips and mucous membranes may be stained brown.

### 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.

**Skin Contact First Aid:** Wash skin for 15 minutes with flowing water and soap. Clothing should be discarded or washed before reuse. Obtain medical assistance if irritation develops. 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. Seek medical assistance if irritation develops. DO NOT instruct person to neutralize.

**Ingestion First Aid:** Vomiting may need to be induced if directed by a physician or poison control center. DO NOT have unqualified personnel induce vomiting. Obtain medical attention immediately.

**Medical Conditions Aggravated:** Respiratory ailments and thyroid problems may be aggravated by exposure to this product.

**Note to Physician:** No specific antidote, treat patient symptomatically.

### SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point/Method:** not applicable

**Auto Ignition Temperature:** >300°C

**Upper/Lower Explosion Limits:** not applicable

**Extinguishing Media:** water (fog or fine spray ), carbon dioxide

**Fire Fighting Procedures:** Avoid procedures that may stir up dust clouds. In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus with full face piece, operated in the positive pressure mode.

**Fire & Explosion Hazards:** When burned, hazardous products of combustion including carbon oxides can occur. Irritating and/or toxic gases due to decomposition of the product may be generated during a fire. Fight fire from a safe distance from a protected location. Contact with strong oxidizers may cause rapid combustion.

**Hazardous Products of Decomposition and/or Combustion:** Carbon Dioxide, Carbon Monoxide, Iodine vapors, other oxides

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### NFPA Ratings:

HEALTH-2    FLAMMABILITY-1    REACTIVITY-1    OTHER-none

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

Clean up spills in a manner that does not disperse dust into the air. Sweep up and recover or mix material with moist absorbent for dust control and pick-up and shovel into waste container. Use detergent in spill area after clean up and flush with plenty of water. Wear respiratory protection during clean up. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure, and removal of material from eyes, skin, and clothing. Dispose of virgin (unused) carbon (waste or spillage) in a facility permitted for non-hazardous wastes. Spent (used) carbon should be disposed of in accordance with applicable laws. Do not reuse empty bags. Dispose of in facility permitted for non-hazardous wastes. **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:** Avoid dispersion into air. Keep containers dry and closed. Follow good handling and housekeeping practices to minimize spills, generation of airborne dusts, and accumulation of dusts on exposed surfaces. Use with adequate exhaust ventilation to draw dust away from workers' breathing zones. Prevent or minimize exposures to dusts by using appropriate respirators, gloves, and eye protection. Wash exposed skin areas thoroughly with soap and water. Use caution when pouring, using pneumatic transport, swirling, etc. as this material can become electrostatically charged.

**Storage:** Avoid breaking bags or spilling media so as to avoid possibly creating residual dust. Store in ambient atmospheric conditions. Product should be stored in a closed dry container. Maintain good housekeeping procedures. Store away from strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc.

**General Comments:** An oxygen deficiency may be created when activated carbon is stored in an enclosed space/silo. Ventilate or wear self-contained breathing apparatus. Follow all procedures for confined space entry. 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:** Use NIOSH/MSHA approved respiratory protection equipment appropriate to the material and/or its concentration where airborne exposure is likely. If exposures cannot be kept to a minimum with engineering controls, consult manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer.

**Skin Protection:** Wear appropriate dust resistant clothing and gloves. Do not handle with bare hands.

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**Eye Protection:** Safety glasses with side shields are recommended for any type of handling. Where eye contact or dusty conditions may be likely, dust tight goggles are recommended.

**Ventilation Protection:** Provide ventilation if necessary to minimize exposure. Dilute ventilation acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment. The following publication offers ventilation guidelines and techniques: "INDUSTRIAL VENTILATION, A MANUAL OF RECOMMENDED PRACTICE" available from the ACGIH.

**Other Protection:** Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle 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:

For Carbon:

OSHA PEL-TWA: 15 mg/m<sup>3</sup> (total), 5 mg/ m<sup>3</sup> (resp)

OSHA PEL-STEL: 10 mg/m<sup>3</sup>

For Potassium Iodide:

OSHA PEL-TWA: 15 mg/m<sup>3</sup> total dust, 5 mg/ m<sup>3</sup> respirable fraction for nuisance dusts

ACGIH TLV-TWA: 10 mg/ m<sup>3</sup> total dust containing no asbestos and <1% silica for Particulates Not Otherwise Classified (PNOC).

For Iodine:

NIOSH REL-CEIL: 0.1ppm (1 mg/m<sup>3</sup>)

OSHA PEL-CEIL: 0.1ppm (1 mg/m<sup>3</sup>)

ACGIH TLV-CEIL: 0.1ppm (1 mg/m<sup>3</sup>)

NIOSH IDLH: 2ppm

For Lime:

ACGIH TLV-TWA: 5 mg/m<sup>3</sup>

NIOSH REL-TWA: 5 mg/m<sup>3</sup>

OSHA PEL-TWA: 15 mg/m<sup>3</sup> (total), 5 mg/m<sup>3</sup> (resp)

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odor:** black granules without taste or odor

**Vapor Pressure:** <0.01 @ 20°C

**Vapor Density (Air=1):** not applicable

**Boiling Point:** not applicable

**Melting Point:** not applicable

**Specific Gravity:** 0.25 - 0.60 g/cc

**Solubility in Water:** < 15%

**Volatile Percentage:** not determined

**pH:** not determined

**Flash Point/method:** not applicable

**Auto Ignition Temperature:** >300°C

**Upper/Lower Explosion Limits:** not applicable

**Other:** not determined

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### SECTION 10 – STABILITY AND REACTIVITY

**Stability:** This product is considered stable under the specified conditions of storage, shipment and use.

**Incompatibilities:** strong oxidizing agents, active metals, ammonia, acetylene and acetaldehyde

**Polymerization:** Hazardous polymerization will not occur.

**Decomposition:** Carbon Dioxide, Carbon Monoxide, Iodine vapors, other oxides

**Conditions to Avoid:** Avoid contact with aluminum, active metals, ammonia, acetaldehyde, organic liquids and strong oxidizers. Heat generation may occur when added to water, alcohol or organic liquids.

### SECTION 11 – TOXICOLOGICAL INFORMATION

**INHALATION – Acute:** Dust may be irritating to the respiratory tract and cause coughing, sneezing, sore throat and shortness of breath. Inhalation of carbon dust is mildly irritating to the lungs and can immediately give rise to an increased mucociliary transport and airway resistance mediated by the vagus. The inhalation LC50 (rat) of carbon is > 64.4 mg/l. The LCLo (rat) of iodine is 76ppm/1hr.

**INHALATION – Chronic:** Lungs may be affected by repeated or prolonged exposure to dust particles.

**SKIN CONTACT – Acute:** Dust may cause skin irritation with redness, pain, roughness, dry skin and blisters. The primary skin irritation index (rabbit) of carbon is 0.

**SKIN CONTACT – Chronic:** Repeated or prolonged contact may cause skin sensitization or dermatitis.

**EYE CONTACT – Acute:** Dust that contacts eyes may be irritating or cause mechanical injury with redness, pain and blurred vision. Calcium hydroxide in various forms is one of the most common causes of severe chemical burns of the eye, most commonly known as “lime burns”. Eye contact can cause conjunctivitis, epithelial hyperplasia of the cornea, as well as eczematous inflammation of the eyelids.

**INGESTION – Acute:** Ingestion of powder may be irritating to the gastrointestinal tract and may cause burning pain in the mouth and esophagus. Lips and mucous membranes may be stained brown. Severe corrosive gastroenteritis may occur evidenced by vomiting, abdominal pain, and diarrhea. The vomitus is blue if starch is present in the stomach. Occasionally feces become bloody. Hypotension, tachycardia, cyanosis, and other signs of shock may develop along with headache, dizziness, delirium, collapse and stupor. The probable human oral lethal dose of carbon is greater than 15 g/kg; more than one quart (2.2 lbs) for a 70 kg (150 lb) person. The probable human oral lethal dose of Potassium iodide is 0.5-5 g/kg.

**INGESTION – Chronic:** A mild toxic syndrome called “iodism” results from chronic iodide overdoses and from repeated administration of small amounts of iodine. Iodism is characterized

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by coryza, sneezing, conjunctivitis, headache, fever, laryngitis, bronchitis, stomatitis, parotitis (iodine mumps) and various skin rashes. Chronic ingestion of modest doses of dietary iodine is an environmental factor with known or suspected adverse effects on the human thyroid.

**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:** Iodine is concentrated in the thyroid gland and metabolic disturbances are likely to result from overexposure.

**TARGET ORGANS:** Target organs include the skin, eyes, digestive tract, thyroid gland, respiratory system and the cardiovascular system.

### SECTION 12 – ECOLOGICAL INFORMATION

There are no known ecological effects.

### SECTION 13 – DISPOSAL CONSIDERATIONS

Clean spills in a manner that does not disperse dust into the air, preferably a wet-down procedure or vacuum. If material is not contaminated, spilled media can be rebagged. Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

Warning: Wet activated carbon depletes oxygen from the air and therefore dangerously low levels of oxygen may be encountered. Whenever workers enter a vessel containing activated carbon, the vessel's oxygen content should be determined and work procedures for potentially low oxygen areas should be followed.

### SECTION 14 – TRANSPORTATION INFORMATION

**DOT Shipping Description:** see shipping papers

### SECTION 15 – REGULATORY INFORMATION

CERCLA SECTION 103 (40CFR302.4): no RQ: none

SARA SECTION 302 (40CFR355.30): no

SARA SECTION 304 (40CFR355.40): no

SARA SECTION 313 (40CFR372.65): no

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: yes CHRONIC: no FIRE: no REACTIVE: no SUDDEN RELEASE: no

OSHA PROCESS SAFETY (29CFR1910.119): no

CALIFORNIA PROPOSITION 65: no

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### 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)