



MATERIAL SAFETY DATA SHEET

Scale-Kleen™

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SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: Scale-Kleen™**Part Number:** none**Chemical Family:** Dry mixture of aluminum salts and weak organic acids used to dissolve lime scale in food service equipment that uses water.

Company:	Everpure, Inc. 2375 Sanders Road Northbrook, IL 60062 USA	N.V. Everpure (Europe) S.A. Research Park, Haasrode B-3001 Heverlee Belgium	Everpure Japan, Inc. 1-18-19, Tsumada Kita Atsugi-Shi Kanagawa 243, Japan
Telephone:	(847)205-6000	32-16-401191	81-462(23)6563
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Chemical Emergency Number (CHEMTREC®): (800) 424-9300**Issue Date:** March 1, 2000**Revision Date/Revision Number:** February 21, 2002, Rev. #2

SECTION 2 – COMPOSITION INFORMATION

<u>Chemical Name</u>	<u>Percent by Weight</u>	<u>CAS#</u>
Aluminum Chloride hexahydrate	50	7784-13-6
Citric Acid monohydrate	50	5949-29-1

SECTION 3 – HAZARDS IDENTIFICATION

Appearance & Odor: White or off-white granules, like coarse salt or sugar; no odor.**Emergency Overview:** Scale-Kleen is not considered toxic or corrosive, but it can be an irritant to eyes, skin and mucous membranes. Fire may produce corrosive fumes of hydrochloric acid.**Fire & Explosion Hazards:** Not flammable, but can be oxidized by fire to produce carbon monoxide and fumes of hydrochloric acid.**Primary Route(s) of Exposure:** skin and eye contact**Inhalation – Acute Effects:** There is no hazard under normal circumstances, but fire or high temperature can produce carbon monoxide and hydrochloric acid fumes. Carbon monoxide can kill, and hydrochloric acid fumes can be highly irritating, leading to pulmonary edema.**Skin Contact – Acute Effects:** Skin contact may cause mild irritation if not washed off.**Eye Contact – Acute Effects:** Eye contact may cause immediate pain and irritation and possible transient erosion of the cornea if not rinsed out.



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SECTION 3 – HAZARDS IDENTIFICATION (continued)

Ingestion – Acute Effects: Ingestion of significant amounts is unlikely because of the taste; getting small drips or spatters of the working solution in the mouth will have no toxic effect. Consuming more than a spoonful of the dry product, or more than a cupful of the working solution, can result in corrosion of the esophagus and absorption of toxic levels of aluminum.

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: Immediately remove clothing from affected area and wash skin vigorously with soap and water. Clothing should be washed before reuse. 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 the eyes open. Contact lenses should be removed before or during flushing. Obtain medical attention immediately. DO NOT instruct the person to neutralize.

Ingestion First Aid: Immediately give large amounts of water or milk, or a dose of milk of magnesia or liquid antacid. Vomiting may have to be induced but should be directed by a physician or poison control center. DO NOT have an unqualified person induce vomiting. Obtain medical attention immediately.

Medical Conditions Aggravated: None known.

Note to Physician: Both the citric acid and the aluminum salt are acids, but the citrate ion buffers acidity to about pH 3.0 (less acidic than stomach acid) while at the same time combining with the aluminum to form a complex ion that may be absorbable. Thus, the acidity is a lesser hazard than the toxicity of aluminum, but neutralizing the acidity with excess alkali in any form should convert all Aluminum to Al(OH)₃, which is inert and should pass harmlessly through the system. If neutralization is delayed and significant levels of aluminum are absorbed into the blood, chelation therapy may be indicated.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point/Method: Not Applicable.

Auto Ignition Temperature: Above 1000°C

Upper/Lower Explosion Limits: Not Applicable

Extinguishing Media: No restrictions.

Fire Fighting Procedures: No special procedures indicated.

Fire & Explosion Hazards: Not flammable, but can be oxidized by fire to produce carbon monoxide and fumes of hydrochloric acid.



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SECTION 5 – FIRE FIGHTING MEASURES (continued)

Hazardous Products of Decomposition and/or Combustion: The waters of crystallization are lost at 100°C. High temperature or fire can produce carbon monoxide and hydrochloric acid fumes.

NFPA Ratings:

HEALTH:	1 = SLIGHT HAZARD
FLAMMABILITY:	0 = MINIMAL HAZARD
REACTIVITY:	1 = SLIGHT HAZARD
OTHER:	NONE

SECTION 6 – ACCIDENTAL RELEASE MEASURES

General: The product is a weak acid, so wear rubber or plastic gloves and goggles or face mask, and protect metals from corrosion.

Solid Material: Sweep up, store in plastic bag, discard in ordinary trash (if a single package) or in a waste facility approved for acidic wastes (if more than one package)

Working Solution: Absorb with paper or other suitable absorbent and discard with ordinary trash, or mop up and rinse with plain water—if a single package. If a larger amount is spilled, first neutralize with any alkali and then absorb and discard in non-hazardous trash.

Do not dump large amounts into any sewers, on the ground or into any body of water. All disposal methods must be in compliance with all federal, state, provincial, or local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the sole responsibility of the waste generator.

SECTION 7 – HANDLING AND STORAGE

Handling: Protect from physical damage. If plastic bag is punctured or unsealed, transfer to a sealed container to prevent contact with moisture. Scale-Kleen will actively absorb moisture from the air; wet Scale-Kleen forms an acid. Do not touch without protective gloves.

Storage: Store in clean, dry environment; protect from excessive heat.

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.



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SECTION 8 –PERSONAL PROTECTION/ EXPOSURE CONTROL

Respiratory Protection: Not needed under normal circumstances. If excessive heat and moisture create fumes of hydrochloric acid, an acid-gas respirator may be indicated.

Skin Protection: Rubber or plastic gloves are recommended.

Eye Protection: Goggles or face mask is recommended.

Ventilation Protection: General ventilation should be sufficient.

Other Protection: 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:

OSHA PEL: 15 mg/m³ total dust (nuisance dust)

OSHA PEL: 5 mg/m³ respirable dust

OSHA PEL: 2 mg/m³ as Al

ACGIH TLV: 2 mg/m³

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: White or off-white granules, like coarse salt or sugar; no odor.

Vapor Pressure: Not Applicable

Vapor Density (Air=1): Not applicable

Boiling Point: Not applicable

Melting Point: ~100°C (Citric Acid)

Specific Gravity: see density

Solubility in Water: Very soluble

Volatile Percentage: 0

pH: 3.0 (of solution)

Flash Point/method: Not Applicable

Auto Ignition Temperature: Not Applicable

Upper/Lower Explosion Limits: Not Applicable

Other: Density = 2.05 g/cm³

SECTION 10 – STABILITY AND REACTIVITY

Stability: Waters of crystallization are lost at 100°C, making the aluminum chloride more likely to produce hydrochloric acid fumes at elevated temperatures. The citric acid begins to char at 338°C.

Incompatibilities: Incompatible with alkalis.

Polymerization: Will not polymerize.

Decomposition: Heating and/or active drying may produce hydrochloric acid fumes.

Conditions to Avoid: Do not puncture or unseal container until ready to use. Protect from excessive heat



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SECTION 11 – TOXICOLOGICAL INFORMATION

Inhalation – Acute: No hazard under normal circumstances. Excess heat can produce fumes of hydrochloric acid, which has NIOSH and OSHA TWA exposure limits of ~5 ppm (7 mg/m³) and IDLH of 100 ppm.

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

Skin Contact – Acute: No hazard under normal circumstances. Skin contact may cause slight, transient irritation.

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

Eye Contact – Acute: Eye contact will cause immediate pain and irritation; transient corneal corrosion possible if not rinsed out.

Ingestion – Acute: The oral LD₅₀ (mouse, rat) is < 7500 mg/kg. Unlikely to be consumed. Accidental ingestion may cause possible corrosion and scarring of esophagus and aluminum poisoning.

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

Carcinogenicity/Mutagenicity: Not carcinogenic or mutagenic.

Reproductive Effects: There are no known reproductive effects.

Neurotoxicity: Aluminum salts are suspected to be neurotoxic. However, ingestion of aluminum is NOT a cause of Alzheimer's Disease, as had once been postulated.

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

Target Organs: Brain

SECTION 12 – ECOLOGICAL INFORMATION

Scale-Kleen is an ecologically friendly product. Aluminum is the most prevalent element in the Earth's crust, but its chemistry produces compounds that are highly insoluble (aluminum silicate, Al(OH)₃ "floc"), which limits its toxicity and absorption. Aluminum floc is welcome in all waste treatment operations. Likewise, citric acid is completely nontoxic and readily consumed by waste treatment organisms. The acidity of Scale-Kleen is its only negative attribute, requiring neutralization or dilution.

SECTION 13 – DISPOSAL CONSIDERATIONS

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 procedures and regulations. Note that state and local regulations may be more stringent than federal regulations.

SECTION 14 – TRANSPORTATION INFORMATION

DOT Shipping Description: Scale-Kleen is not a hazardous material, and there are no restrictions in its transport.



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SECTION 15 – REGULATORY INFORMATION

No information is available.

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.

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