

VP-17-0001, HPA-010


(Chromate Selective Weak Base Anion Exchange Resin)

Effective date 1 January 2021

SECTION 1: Identification	
1A: Product Names	VP-17-001, HPA-010
1B: Common Name	Calcium Hypochlorite -VP Series Sanitization Cartridge, Aries Sanitization Kit
1C: Intended use	Sanitization for Vaponics, Gemini and Aries systems.
1D: Manufacturer Address	ResinTech, Inc. 1801 Federal Street, Camden, NJ 08105 USA
Contact Information:	856-626-1550 info@resintech.com
1D: Supplier Address	Arch Chemicals, Inc. 1200 Bluegrass Lakes Parkway Alpharetta, GA 3004 USA
Contact Information:	1-800-654-6911

SECTION 2: Hazard Identification	
GHS Classification	
Oxidizing solids	Category 2
Acute toxicity (Oral)	Category 4
Acute toxicity (Inhalation)	Category 2
Skin corrosion	Category 1B
Serious eye damage	Category 1
Specific target organ toxicity -single exposure	Category 3 (Respiratory system)

SECTION 2: Hazard Identification

<p>GHS label elements</p> <p>Hazard pictograms</p>	
<p>Hazard Statements:</p>	<p>H272 May intensify fire; oxidizer.</p> <p>H302 Harmful if swallowed.</p> <p>H314 Causes severe skin burns and eye damage.</p> <p>H318 Causes serious eye damage.</p> <p>H330 Fatal if inhaled.</p> <p>H335 May cause respiratory irritation</p>
<p>Prevention:</p>	<p>P210 Keep away from heat.</p> <p>P220 Keep/Store away from clothing/ combustible materials.</p> <p>P221 Take any precaution to avoid mixing with combustibles.</p> <p>P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.</p> <p>P264 Wash skin thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/face protection.</p> <p>P284 Wear respiratory protection.</p>

SECTION 2: Hazard Identification

Response:	<p>P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.</p> <p>P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.</p> <p>P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.</p> <p>P312 Call a POISON CENTER/doctor if you feel unwell.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.</p>
Storage:	<p>P403 + P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405 Store locked up.</p>
Disposal:	<p>P501 Dispose of contents/ container to an approved waste disposal plant.</p>

SECTION 3: Composition/ Information on Ingredients

CHEMICAL NAME	CAS#	% Range
CALCIUM HYPOCHLORITE	7778-54-3	<1
SODIUM CHLORIDE	7647-14-5	<.5
CALCIUM CHLORATE	10137-74-3	<.5
CALCIUM CHLORIDE	10043-52-4	<.5
CALCIUM HYDROXIDE	1305-62-0	<.5
CALCIUM CARBONATE	471-34-1	<.5
Water	7732-18-5	>95

SECTION 4: First Aid Measures

General Advice:	Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency ActionNetwork at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Inhalation:	IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
Skin Contact:	IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Eye Contact:	IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Ingestion:	IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Notes to Physician:	Probable mucosal damage may contraindicate the use of gastric lavage.

SECTION 5: Fire Fighting Measures

Flammability Summary (OSHA):	This product is chemically reactive with many substances. Any contamination of the product with other substances by spill or otherwise may result in a chemical reaction and fire. This product is a strong oxidizer which is capable of intensifying a fire once started. Product is not known to be flammable, combustible or pyrophoric.
Flammable Properties	
Flash Point:	Not applicable
Auto ignition Temperature:	Not applicable

SECTION 5: Fire Fighting Measures

Extinguishing Media:	Water only. Do not use dry extinguishers containing ammonium compounds.
Fire Fighting Instructions:	Use water to cool containers exposed to fire. See Section 6 for protective equipment for firefighting.
Upper Flammable / Explosive Limit % in air:	Not applicable
Lower Flammable / Explosive Limit % in air:	Not applicable

SECTION 6: Accidental Release Measures

Personal Protection for Emergency Situations:	Response to a large quantity spill (100 pounds or greater) or when S dusting or decomposition gas exposure could occur requires the use of a positive pressure full face supplied air respirator or self-contained breathing apparatus (SCBA), chemical resistant gloves, coveralls and boots. In case of fire, this personal protective equipment should be used in addition to normal fire fighting equipment.
Spill Mitigation Procedures Air Release:	Vapors may be suppressed by the use of water fog. All water utilized to assist in fume suppression, decontamination or fire suppression may be contaminated and must be contained before disposal and/or treatment.
Water Release:	This product is heavier than water. This material is soluble in water. Monitor all exit water for available chlorine and pH. Advise local authorities of any contaminated water release.
Land Release:	Contact 1-800-654-6911 immediately. DANGER: All spills of this product should be treated as contaminated. Contaminated product may initiate a chemical reaction that may spontaneously ignite any combustible material present, resulting in a fire of great intensity. In case of a spill, separate all spilled product from packaging debris and other material. Using a clean broom or shovel. Place all spilled product into plastic bags, and place those bags into a clean, dry disposal container, properly marked and labeled. Disposal containers made of plastic or metal are recommended. Do not seal disposal containers tightly. Remove all disposal containers to an isolated area outdoors. Place all damaged packaging material in a disposal container of water to assure decontamination (i.e. removal of all product) before disposal. Place all undamaged packaging in a clean, dry container properly marked and labeled. Call for disposal procedures.

SECTION 6: Accidental Release Measures

Additional Spill information:	<p>Hazardous concentrations in air may be found in local spill area and immediately downwind. Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. Dispose of spill residues per guidelines under Section 13, Disposal consideration. This material may be neutralized for disposal; you are requested to contact Arch Chemicals at 1-800-654-6911 before beginning any such procedure. FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC: 1-800-424-9300. REPORTABLE QUANTITY: 10 lbs. (as calcium hypochlorite) per 40 CFR 302.4.</p>
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SECTION 7: Handling and Storage

Handling:	<p>Avoid inhalation of dust and fumes. Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Remove contaminated clothing and wash before reuse.</p>
Storage:	<p>Keep product tightly sealed in original containers. Store product in a cool, dry, well-ventilated area. Store away from combustible or flammable products. Keep product packaging clean and free of all contamination, including, e.g. other pool treatment products, acids, organic materials, nitrogen-containing compounds, dry powder fire extinguishers (containing mono-ammonium phosphate), oxidizers, all corrosive liquids, flammable or combustible materials, etc.</p>
Shelf Life Limitations:	<p>Do not store product where the average daily temperature exceeds 95° F. Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products. Shelf life (that is, the period of time before the product goes below stated label strength) is determined by storage time and temperatures. Store in a cool, dry and well-ventilated area. Prolonged storage at elevated temperatures will significantly shorten the shelf life. Storage in a climate controlled storage area or building is recommended in those areas where extremes of high temperature occur. Average daily temperature of 35° C / 95° F. Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products.</p>

SECTION 7: Handling and Storage

Incompatible Materials for Storage:	Do not allow product to come in contact with other materials, including e.g. other pool treatment products, acids, organic materials, nitrogen-containing compounds, dry powder fire extinguishers (containing mono-ammonium phosphate), oxidizers, all corrosive liquids, flammable or combustible materials, etc. A chemical reaction with such substances can cause a fire of great intensity.
Do Not Store At Temperatures Above:	Average daily temperature of 35° C / 95° F. Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products.

SECTION 8: Exposure Controls/Personal Protection

Ventilation:	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep airborne exposures below the TLV, PEL or other recommended exposure limit.
Protective Equipment for Routine Use of Product Respiratory Protection:	Wear a NIOSH approved respirator if levels above the exposure limits are possible.
Respirator Type:	A NIOSH approved full-face air purifying respirator equipped with combination chlorine/P100 cartridges. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.
Skin Protection:	Wear impervious gloves to avoid skin contact. A full impervious suit is recommended if exposure is possible to a large portion of the body.
Eye Protection:	Use chemical goggles.
Protective Clothing Type:	Neoprene, Nitrile, Natural rubber (This includes: gloves, boots, apron, protective suit)
General Protective Measures:	An eye wash and safety shower should be provided in the immediate work area.

SECTION 8: Exposure Controls/Personal Protection			
Components with Workplace Control Parameters			
Components (CAS-No)	Value	Control Parameters	Basis (Update)
CALCIUM HYPOCHLORITE (7778-54-3)	TWA	1 mg/m ³	ARCH OEL*
CALCIUMHYPOCHLORITE (7778-54-3)	Cone	37 –48 mg/m ³	NIOSH/Guide IDHL
CALCIUMHYDROXIDE (1305-62-0)	TWA	5mg/m ³	ACGIH (02 2014)

* ARCH OEL – ARCH Recommended Occupational Exposure Guideline.

SECTION 9: Physical and Chemical Properties	
Physical State	Solid
Form	Free Flowing Granular
Color	White
Odor	Chlorine-like
Molecular Weight	143 g/mol
Relative Density	N/A
pH	10.5 – 11.5 (1% solution in neutral, distilled water, (@ 25° C)
Boiling Point	N/A
Freezing Point	N/A
Density	0.8 g/cm ³
Vapor Pressure	N/A
Vapor Density	N/A
Viscosity	N/A
Fat Solubility	No Data Available
Solubility in Water	Approximately 18% (@ 25° C) Product also contains calcium hydroxide and calcium carbonate which will leave a residue.
Partition coefficient n-octanol/water:	No Data Available
Evaporation Rate:	Oxidizing
Oxidizing:	Oxidizing
Volatiles, % by vol.:	N/A

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SECTION 9: Physical and Chemical Properties

VOC Content:	N/A
HAP Content:	N/A

SECTION 10: Stability and Reactivity

Stability and Reactivity Summary:	Product is not sensitive to mechanical shock or impact. Product is not sensitive to electrical static discharge. Product will not undergo hazardous polymerization. Product is an NFPA Class 3 oxidizer which can cause a severe increase in fire intensity. Not pyrophoric. Not an organic peroxide. If subjected to excessive temperatures, the product may undergo rapid decomposition, evolution of chlorine gas, and heat sufficient to ignite combustible substances. If product is exposed to small amounts of water, it can react violently to produce heat and toxic gases and spatter. Use copious amounts of water for fires involving this product. NFPA Oxidizer Class: Meets the criteria of an NFPA Class 3 Oxidizer.
Reactive Properties:	Product is not sensitive to mechanical shock or impact. Product is not sensitive to electrical static discharge. Not pyrophoric. Not an organic peroxide.
Conditions to Avoid:	Do not store next to heat source, in direct sunlight, or elevated storage temperature. Do not store where the daily average temperature exceeds 95 °F. Prevent ingress of humidity and moisture into container or package. Always close the lid.
Chemical Incompatibility:	This product is chemically reactive with many substances, including, e.g. other pool treatment products, acids, organics, nitrogen-containing compounds, dry powder fire extinguishers (containing mono-ammonium phosphate), oxidizers, corrosive, flammable or combustible materials. Do not allow product to contact any foreign matter, including other water treatment products. Contamination or improper use may cause a fire of great intensity, explosion or the release of toxic gases. If product is exposed to small amounts of water, it can react violently to produce heat and toxic gases and spatter.
Hazardous Decomposition Products:	Chlorine
Decomposition Temperature:	170 - 180° C - 338 - 356° F

SECTION 11: Toxicological Information

Component Animal Toxicology Oral LD50 value:

Calcium Hypochlorite (65%)	LD50	= 850 mg/kg	Rat
Sodium Chloride	LD50	= 3,000 mg/kg	Rat
Calcium Chloride	LD50	= 1,000 mg/kg	Rat
Calcium Hydroxide	LD50	= 7,340 mg/kg	Rat

Component Animal Toxicology Dermal LD50 value:

Calcium Hypochlorite (65%)	LD50	>2,000 mg/kg	Rabbit
Sodium Chloride	LD50	> 10,000 mg/kg	Rabbit
Calcium Chloride	LD50	= 2,630 mg/kg	Rat
Calcium Hydroxide	No Data Available		

Component Animal Toxicology Inhalation LC50 value:

Calcium Hypochlorite (65%)	LC50	Inhalation (nose only) 1 h	= 2.04 mg/l	Rat
Calcium Hypochlorite (65%)	LC50	Inhalation (nose only) 4 h	= 0.51 mg/l	Rat
Sodium Chloride	LC50	Inhalation 1 h	> 42 mg/l	Rat
Calcium Chloride	No Data Available			
Calcium Hydroxide	No Data Available			

Product Animal toxicity

Oral LD50 value	LD50 Believed to be approximately 700 mg/kg Rat
Dermal LD50 value	LD50 Believed to be > 2,000 mg/kg Rabbit
Inhalation LC50 value	LC50 1.00 h (Nose Only) Believed to be approximately 1.7 mg/l Rat LC50 4.00 h (Nose Only) Believed to be approximately 0.425 mg/l Rat LC50 4.00 h Believed to be approximately 0.425 mg/l Rat LC50 1.00 h Believed to be approximately 1.7 mg/l Rat

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Product Animal toxicity	
Skin Irritation:	Dry material causes moderate skin irritation. Wet material causes skin burns.
Eye Irritation:	Corrosive to eyes.
Skin Sensitization:	This material is known or reported to be a skin or respiratory sensitizer.
Acute Toxicity:	This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract. The dry material is irritating to the skin. However when wet, it will produce burns to the skin. This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract. The dry material is irritating to the skin. However when wet, it will produce burns to the skin.
Subchronic / Chronic Toxicity:	There are no known or reported effects from repeated exposure except those secondary to burns.
Reproductive and Developmental Toxicity:	Calcium hypochlorite has been tested for teratogenicity in laboratory animals. Results of this study have shown that calcium hypochlorite is not a teratogen.
CALCIUM CHLORIDE:	Not known or reported to cause reproductive developmental toxicity.
Mutagenicity:	Calcium hypochlorite has been tested in the Dominant lethal assay in male mice, and it did not induce a dominant lethal response. Calcium hypochlorite has been reported to produce mutagenic activity in two in vitro assays. It has, however, been shown to lack the capability to produce mutations in animals based on results from the micronucleus assay. In vitro assays frequently are inappropriate to judge the mutagenic potential of bactericidal chemicals due to a high degree of cellular toxicity. The concentration which produces mutations in these in vitro assays is significantly greater than the concentrations used for disinfection. Based on high cellular toxicity in in vitro assays and the lack of mutagenicity in animals, the risk of genetic damage to humans is judged not significant.
CALCIUM CHLORIDE:	This product was determined to be non-mutagenic in the Ames assay. It was also shown to be non-clastogenic in the chromosomal aberration test.

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Product Animal toxicity	
Carcinogenicity:	This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA. One hundred mice were exposed dermally 3 times a week for 18 months to a solution of calcium hypochlorite. Histopathological examination failed to show an increased incidence of tumors. IARC (International Agency for Research on Cancer) reviewed studies conducted with several hypochlorite salts. IARC has classified hypochlorite salts as having inadequate evidence for carcinogenicity to humans and animals. IARC therefore considers hypochlorite salts to be not classifiable as to their carcinogenicity to humans (Group 3 Substance).
CALCIUM CHLORIDE:	This chemical is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA

SECTION 12: Ecological information	
Overview:	Highly toxic to fish and other aquatic organisms.

Ecological Toxicity Values for: CALCIUM HYPOCHLORITE	
Bluegill:	(nominal static) 96 h LC50 0.088 mg/l
Rainbow trout (Salmo gairdneri):	(nominal static) 96 h LC50 0.16 mg/l
Daphnia magna:	(nominal static) 48 h LC50 0.11 mg/l
Bobwhite quail:	Dietary LC50 > 5,000 ppm
Mallard ducklings:	Dietary LC50 > 5,000 ppm
Bobwhite quail:	Oral LOSO 3,474 mg/kg

Ecological Toxicity Values for: CALCIUM CHLORIDE	
Bluegill:	(nominal static) 96 h LC50 = 10,650 mg/l
Mosquito fish:	(nominal static) 96 h LC50 = 13,400 mg/l
Pimephales promelas (fathead minnow)	(nominal static) 96 h LC50 = 4,630 mg/l
Daphnia magna	(nominal static) 48 h LC50 = 2,770 mg/l
Ceriodaphnia dubia	(nominal static) 48 h LC50 = 1,830 mg/l
Nitzschia linearis (diatom)	(nominal static) 5 day LC50 = 3,130 mg/l

SECTION 13: Disposal Considerations

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary:	If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: 0001. If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal restrictions under 40 CFR 268 and must be managed accordingly.
Disposal Methods:	As a hazardous solid waste it should be disposed of in accordance with local, state and federal regulations.
Potential US EPA Waste Codes:	D001

SECTION 14: Transportation Information

DOT		TOG	
UN Number	2880	UN Number	2880
Description of the goods	Calcium hypochlorite, hydrated mixture	Description of the goods	Calcium hypochlorite, hydrated mixture
Class	5.1	Class	5.1
Packing Group	II	Packing Group	II
Labels	5.1	Labels	5.1
Emergency Response	-		
Guidebook Number	140		

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IATA		IMDG - CODE	
UN Number	2880	UN Number	2880
Description of the goods	Calcium hypochlorite, hydrated mixture	Description of the goods	Calcium hypochlorite, hydrated mixture
Class	5.1	Class	5.1
Packing Group	II	Packing Group	II
Labels	5.1	Labels	5.1
Packing instruction (cargo aircraft)	562	Ems Number 1	F-H
Packing instruction (cargo aircraft)	558	Ems Number 2	S-Q
Packing instruction (cargo aircraft)	Y544	Marine pollutant	Yes

Section 15: Regulatory Information

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.

Signal word	DANGER
Hazard statements	Causes substantial but temporary eye injury. Corrosive. Causes skin burns. Corrosive. Causes irreversible eye damage This pesticide is toxic to fish.

EPCRA – Emergency Planning and Community Right-to-Know Act			
Components	CAS-No	Component RQ (lbs)	Calculate Product RQ (lbs)
Calcium hypochlorite	7778-54-3	10	11
<p>SARA 304 Extremely Hazardous Substances Reportable Quantity This material does not contain any components with a section 304 EHS RQ.</p> <p>SARA 302 No chemicals in this material are subject to the reporting requirements of SARA Title III, section 302.</p> <p>SARA 313 This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, section 313.</p>			

US State Regulations		
Massachusetts Right to Know		
	Calcium hypochlorite	7778-54-3
	Calcium Chlorate	10137-74-3
	Calcium dihydroxide	1305-62-0
	Calcium carbonate	471-34-1
Pennsylvania Right to Know		
	Calcium hypochlorite	7778-54-3
	Calcium Chlorate	10137-74-3
	Calcium Chloride	10043-52-4
	Calcium dihydroxide	1305-62-0
	Calcium carbonate	471-34-1
	Sodium Chloride	7647-14-5
New Jersey Right to Know		
	Calcium Chlorate	10137-74-3
	Calcium Chlorate	10137-74-3
	Calcium Chloride	10043-52-4
	Calcium dihydroxide	1305-62-0
	Calcium carbonate	471-34-1
<p>California Prop 65 - This product does not contain any chemicals known to the state of California to cause cancer, birth defects or any other reproductive harm.</p> <p>The components of this product are reported in the following inventories:</p> <p>TSCA - This is an EPA registered pesticide.</p> <p>Inventories - AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea). NZIOC (New Zealand), PICC</p>		

SECTION 16: Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that their activities comply with federal, state, and local laws.

16A: Date of Revision

1 January 2021