

A thick dark blue vertical bar runs down the left side of the page. A blue arrow-shaped graphic points to the right from the bar, containing the date.

2/24/2014

Dave Ashleigh Aquatics Center

Pool Safety Plan

A decorative graphic in the bottom-left corner consisting of several thin, curved lines in shades of blue and grey, resembling stylized waves or reeds.

Dave Ashleigh Aquatics Center Pool Safety Plan

The Dave Ashleigh Aquatics Center is an educational facility of Modesto Junior College. The public use of this facility is controlled by Modesto Junior College in accordance with YCCD Board Policy 6700. Unauthorized use is prohibited. The center consists of two heated pools, the large pool is about 450,000 gallons of water and the smaller pool is about 45,000 gallons of water. Most home pools are no larger than about 10,000 gallons of water and do not get the heavy volume of swimmers and scale of usage that is experienced at the college facility.

The facility is operated in a public usage profile, therefore we are required to adhere to the Stanislaus County Health Department’s requirements to operate.

Name of Facility: Dave Ashleigh Aquatics Center

Facility Address: 435 College Avenue

City/State/Zip: Modesto, CA 95350

A. Organization and Management

1.) Outline the Chain of Command for your facility below:

Modesto Junior College	
College President	
Vice President of Instruction	
Division Dean – Athletic Director	Division Dean - Community Ed
Health/Physical Education Instructors	C.E. Program Specialists
Diving Coach	Swim Coaches/Asst./Life Guard

YCCD Facilities Operations

Director, Facilities Planning & Operations
 Campus Facilities Manager II
 Mechanical Systems Manager
 Swimming Pool Technician

2.) Pool Job Duties and Descriptions - enter the job duties that are carried out by each position in your facility below:

Title	Pool Job Duty	CPR and/or First Aid Certification**
Division Dean	Schedules MJC aquatics classes in both pools; supervises coaches/instructors	N/A
Swim Coach	Provides swimming instruction for MJC students, and student-athletes, reviews safety rules on course syllabus with students. Reports any pool deck hazards.	LGT/CPR/First Aid

Dave Ashleigh Aquatics Center Pool Safety Plan

Water Polo Coach	Provides water polo instruction for MJC students, and student-athletes, reviews safety rules on course syllabus with students. Reports any pool deck hazards and accidents to Campus Safety and Division.	LGT/CPR/First Aid
Diving Coach	Provides diving instruction for MJC student athletes. Reports hazards found in aquatics center and accidents to Campus Safety and Division.	LGT/CPR/First Aid
C.E. Swim/Dive Coach	Provides swimming/diving instruction for Community Education students, reviews safety rules with students on first day of class and as needed. Reports any pool deck hazards and accidents to Campus Safety and Division.	LGT/CPR/First Aid/Title 22 within one year of employment
C.E. Assistant Coaches	Assists Coach with swimming instruction for Community Education students, reviews safety rules with students as needed. Reports any pool deck hazards and accidents to Campus Safety and Division.	LGT/CPR/First Aid/Title 22 within one year of employment (checking on requirements)
C.E. Lifeguard	Observes swimmers from pool deck and insures safety during kid's swim lessons and activities. Reinforces pool safety rules as needed. Reports any pool deck hazards and accidents to Campus Safety and Division.	LGT/CPR/First Aid/Title 22 within one year of employment
C.E. Swim Lesson Coordinator	Provides swimming instruction for Community Education students, reviews safety rules with students on first day of class and as needed. Reports any pool deck hazards and accidents to Campus Safety and Division.	LGT/CPR/First Aid/Title 22 within one year of employment
C.E. Swim Aides	Assists Swim Lesson Coordinator with swimming instruction for Community Education students, reviews safety rules with students as needed. Reports any pool deck hazards and accidents to Campus Safety and Division.	LGT/CPR/First Aid (does not need Title 22 if on deck person is present and certified-checking on requirement)

Maintenance Person(s)		
Swimming Pool Technician	Performs maintenance on swimming pools; checks and tests the operation of pool equipment such as pool covers, heaters, the surge pit, circulating pumps, filters, chemical pumps and controllers; checks chemical levels in tanks; maintains and repairs pool controls, equipment and liquid chemical lines as needed.	N/A
Maintenance Specialist – HVAC	Performs maintenance on swimming pools; checks and tests the operation of pool equipment such as pool covers, heaters, the surge pit, circulating pumps, filters, chemical pumps and controllers; checks chemical levels in tanks; maintains and repairs pool controls, equipment and liquid chemical lines as needed.	N/A

**CPR and First Aid Certifications

All personnel are responsible for enforcing rules and regulations of the pool and surrounding area, preparing written reports of any incidents, and identifying any safety hazards or concerns.

B. Injury Prevention

1.) Daily Inspection/Maintenance – Indicate below the title of the person who is responsible for the daily inspections of the facility (minimum of 3) to assure that adequate safety levels are maintained. Any problems such as unsafe water conditions, broken equipment, loose ladders, electrical equipment malfunction, broken/loose main drain grates etc. will be reported to the owner/operator/general manager and immediately corrected. The facility is also responsible for maintaining records on the testing of the pool and/or spa water (minimum of 3 times daily) and operation of the applicable systems.

Physical, Recreational and Health Education Office is responsible for the daily inspections of instructional equipment, and supplies of the swimming pool.

Facility Operations is responsible for cleaning, and testing the pool water and maintaining the systems.

2.) The following equipment are potentially hazardous that are marked, and constantly supervised.

- 2 Diving Boards (Diving boards are to be used by one person at a time.)
- 8 Starting Blocks
- 2 Water polo goal

3.) Rules and Regulations – Proper signage is posted in the pool area for the pool which states the rules and regulations.

Pool Signage

<p><u>East Wall</u> Authorized pool use only</p>	<p><u>North (On Wall and locker Room Alcove)</u> Age Restriction (13 and under must be attended by parent/guardian) Bathroom use Large Pool Capacity Sign</p>
<p><u>West (On fence and front door)</u> No lifeguard On Duty No Diving Diarrhea rules Full Pool rules 1-9 Authorized pool use only</p>	<p><u>South Wall</u> No Lifeguard on duty Emergency call 911 Age Restriction (13 and under must be attended by parent/guardian) bathroom use No Lifeguard on Duty</p>

Swimming Pool Signage

POOL SIGNAGE

A. A sign shall be conspicuously posted in the pool area stating:

1. The maximum number of swimmers who may use the swimming pool at one time.
2. The hours that a swimming pool is open.
3. The pool is only open for district approved and scheduled activities
4. The pool use is prohibited at any other time
5. Urinating, discharge of fecal matter, expectorating or blowing the nose in any swimming pool is prohibited.

B. Warning signs of a minimum 36” x 24” size with safety conditions and methods of summoning emergency individual must be posed. The warning sign must state:

- Two or more adults, 18 years of age or older, must be present at the pool when the facility is in use, with at least an approved coach or instructor on the pool deck.
- Children less than 16 years of age must at all times be supervised by an approved coach or instructor on the pool deck responsible for their safety and behavior while at the facility.
- Shallow water – no diving.
- Method of summoning CPR staff (if applicable).
- Location of free telephone and emergency numbers to contact.

Pool Rules

- **No Swimming alone**
- **No running/horseplay**

- **No food/glass or gum allowed**
- **No animals allowed in fenced area**
- **Nobody in pool without instructor supervision**
- **No running on or swimming under pool cover**
- **No skateboards/bike riding**
- **No hair pins or clips allowed in pool**
- **No unauthorized personnel on pool deck**
- **Registered swimmers only during approved classes or activities.**

4.) Environmental Conditions and Weather- If adverse weather conditions directly or indirectly affect the pool, individuals using the facility will be required to evacuate the pool and area. Signs will then be posted notifying patrons that the pool has been closed. The area will be locked and monitored to ensure adherence to evacuation.

5.) Swimmer Capacity of the Facility- the capacity limit for the facility will be enforced at all times. Staff should frequently monitor the pool area.

- The Large Pool Capacity is **375** persons (*As identified by department, pool capacity will be kept at a maximum of 100 persons*)
- Small Pool Capacity is **125** persons (*As identified by department, pool capacity will be kept at a maximum of 50 persons*)

6.) Supervision

Aquatic Classes and programs “on deck” Supervision-Pool supervision is defined as anyone who is paid by the district, or MJC community education.

- All personnel supervising any aquatic activity will have proper lifeguard training, CPR, and First Aid certification.
- Supervisor(s) in charge will be responsible for providing constant monitored activity.
- Supervisor(s) must be familiar with pool rules and emergency procedures.
- Supervisor(s) will secure pool area before leaving.
- Any structural and facilities issues should be reported immediately.
- Supervisor(s) shall be responsible for conducting a 25 yard “swim test” before letting new swimmers use the large pool. Swimmers must be able to swim 25 yards without stopping in a horizontal manner.

7.) Chemical Storage and Handling

- Follow instructions on the chemical container.
- Never add water to chemicals; always add chemicals to water, using proper eye protection.
- Never mix any chemical with chlorine products-dangerous chlorine gas will develop immediately.
- Always use a clean scoop when dispensing powdered Chlorine (calcium hypochlorite) as a potential fire hazard exists.

- Always keep chemicals in their original containers.
- Chemicals dispensing crocks are to be clearly labeled.
- **ONLY AUTHORIZED AND TRAINED PERSONNEL SHOULD USE POOL CHEMICALS**

MJC Pool Maintenance

We are mandated by the Stanislaus County Health department to maintain the pool chemistry to sustain the operation that requires the monitoring and calculated addition of chemical additives to protect the equipment, plaster and over all life cycle of the facility components. This includes not only the chlorine and PH levels but the total alkalinity and calcium hardness of the pool water chemistry.

- The mandated chlorine levels must be maintained at a range between 1.0 and 4.0
- The mandated PH levels must be maintained at a range between 7.2 and 7.8
- To protect the pumps, pipes, seals, plaster, and heaters the range of other pool chemistry parameters must also be maintained as follows:
- Total alkalinity range between 80 – 100
- Calcium Hardness range between 200 – 400 (Knorr recommends 700)

The chlorine and PH levels are monitored and controlled by an automated controller on a 24 hour per day basis. This operation requires extensive maintenance to maintain the required pool chemistry levels established by the Health Department.

The total alkalinity and calcium range is not an automated feature and require manual feeding of the compounds to maintain the parameters. The operators use any “windows” of time between scheduled classes to accomplish this. This is one reason it is imperative for students to occupy only the pools that they have been scheduled to use.

The District’s standard of Risk Management is to provide a safe and mandated pool chemistry for public use, therefore the pool chemical levels are checked before and after scheduled pool usage has occurred. This includes Fridays on the 10 Hour summer schedule and weekend scheduled usage. Failure to provide this level of monitoring could expose the District to potential liability and financial claims in the event of a malfunction not detected prior to usage.

Swimming Pool Chemicals for this facility are stored: See Exhibit A

Planned Pool Maintenance Schedule: The planned pool maintenance scheduled sets aside individual weeks when the MJC Dave Ashleigh Aquatics Center pools are “closed for use” to allow the district and college to plan specific maintenance, repairs and service that require dedicated uninterrupted time. Work performed during these weeks should be determined annually via a collective meeting process involving the PHRE Division, Community Education and district staff. Other emergency pool repairs may require closure of the pools at times other than mentioned below.

- Winter Break – December
- 4th Week - May
- Daily maintenance as required

C. Emergency Plan

Life Threatening:

1. **Call 911.** Follow instructions
2. Then if your able call 6911 at Modesto Junior College Campus Safety

Non-Life Threatening:

1. **Call the 24-hour security phone number** Modesto Junior College/Central Services: 575-6351
2. State the medical aid needed.
- 3 Provide the location of the emergency.
4. Describe the type of injury or illness.
5. Provide a brief description of how the injury or illness occurred.
6. Provide first aid only to the extent of your personal training and ability.
7. Do not move the injured or ill unless it is necessary to avoid further injury.
8. Have someone meet the emergency personnel to direct them to the emergency location.

*******Special Procedures for Epileptic Seizures*******

Any person suffering a seizure in the water and submerges should be transported to a medical facility regardless of apparent recovery.

A person suffering a seizure shall not be allowed in the water again for the remainder of the day.

Note the location of the free telephone both in the space provided below and on the warning sign(s) posted in the pool area:

All medical emergencies in the pool area shall be reported to Campus Safety 575-6351

EVACUATION: On order to evacuate or the activation of a Fire Alarm in the building around the pool. Persons in the pool shall evacuate with the buildings in accordance with the College Districts Comprehensive Emergency Operations Plan. The primary evacuation point for the PE Facility is the Football Practice Field.

SHELTERING IN PLACE: On direction to shelter in place, persons within the pool facility will move into the men's locker room and secure the door the doors in the area. Persons shall remain sheltered until given the all clear by Campus Safety.

E. Conditions That Require Clearing the Water of Swimmers and Immediate Closure of the Pool

- If the main drain of the pool is not visible, the pool must be closed, and notify

Maintenance.

- Inadequate disinfectant residual in the pool. The pool is to be closed until adequate disinfectant levels can be provided (see tables of water quality requirements below).
- Fecal matter in the pool.
- Chemical contamination, including unusual odors or coloring of the pool water.

Guideline for Fecal or Blood Contamination of Regulated Swimming Pools

Swimming is one of California's most popular recreational activities. With millions of people visiting swimming pools every year there may be incidents of fecal or blood contamination of swimming pool water. Although aesthetically displeasing, accidental discharges of feces, or occasional blood contamination of swimming pool water may not require facility closure or replacement of pool water to ensure that the health of bathers is protected. However, it is important to understand the appropriate method of evaluating each incident so that pool water contamination response can be quick and effective. By doing so, pool operators can minimize potential pool closure while also keeping bathers safe from hazardous exposures. The following guidance should be used to evaluate an incident of swimming pool contamination and determine the appropriate response.

Fecal Contamination

Fecal contamination of swimming pool water poses a potential risk of infection to bathers. Feces may contain pathogenic or harmful bacteria, viruses and parasites that are resistant to chlorine at concentrations found in a pool under normal operating conditions. Special precautions must be taken to ensure that the water is made safe for bathers. Swimming pool operators must respond differently to formed-stool and diarrhea in the swimming pool. Diarrhea may indicate that a bather is ill with pathogens such as the highly chlorine-resistant parasite *Cryptosporidium*. Therefore, more stringent measures must be taken to sanitize the pool when diarrhea discharges occur.

The following steps should be followed when fecal contamination of a swimming pool occurs.

Formed-Stool (solid, non-liquid)

- Clear the pool of all swimmers.
- Using a skimming net or scoop, remove as much fecal material as possible from the water and dispose into the sanitary sewer.
- Clean and disinfect the net (bleach/chlorine solution will work) to prevent reintroducing fecal matter to the water.
- Spot treat the area of the pool where the contamination occurred with approximately 8-10 ounces of chlorine.
- Raise the pool water's Free-Chlorine residual to 2-3 ppm (pH 7.2-7.5 SU).

Dave Ashleigh Aquatics Center Pool Safety Plan

- Take chlorine readings from multiple locations around the pool to verify that all areas have reached 2-3 ppm.
- Close the pool for 30 minutes.

Diarrhea (liquid stool)

- Clear the pool of all swimmers.
- Using a skimming net or scoop, remove as much fecal material as possible from the water and dispose into the sanitary sewer.
- Clean and disinfect the net (bleach/chlorine solution will work) to prevent reintroducing fecal matter to the water.
- Based on pool volume, calculate the amount of chlorine that is needed to establish **20 ppm of chlorine*** in the pool.

2/3 quarts of 12% sodium hypochlorite OR 1/4 pound of 65% calcium hypochlorite per 10,000 gallons pool water will raise the free chlorine residual by approximately 2 ppm.

- Add the, correct amount of chlorine to the pool. Chlorine may be added by hand around the swimming pool. Maintain the pH between 7:2-7.5 SU.
- Keep the pool closed for 8 hours. **
- Continue to operate the filter and disinfection equipment during this period.
- After 8 hours, backwash filters thoroughly.
- Make sure that the chlorine concentration in the pool is within acceptable levels (0.6 ppm -5.0 ppm) before allowing bathers to enter the water.

*Pool closure time is dependent on the level of free chlorine present in the water. The following combinations of free chlorine residuals and pool closure time provide the same level of protection against disease transmission and can be substituted in lieu of 20 ppm for 8 hours.

Free Chlorine Residual*	Closure Time**
15 ppm	11 hours
10ppm	16 hours
5ppm	32 hours

Blood Contamination

Blood discharge into swimming pool water poses very little risk to bather health when the swimming pool's water chemistry and chlorine levels meet the requirements of the State Sanitary Code Subpart 6-1 "Swimming Pools." The chlorine (or bromine) that is already

Dave Ashleigh Aquatics Center Pool Safety Plan

present in the pool quickly deactivates pathogens that may be in blood. As a result, there have been no documented cases of blood-borne disease transmission from swimming pool water. If blood contamination of a pool occurs, the following follow steps should be taken.

- Test the pool's water chemistry and chlorine (or bromine) levels to ensure compliance with State Sanitary Code section 6-1.11 (c).
- If chlorine (or bromine) levels are satisfactory no further action is necessary.
- If disinfectant level does not meet the minimum level required for pool operation, the pool must be closed and chlorine (or bromine) added until levels are satisfactory.

Dave Ashleigh Aquatics Center Pool Safety Plan

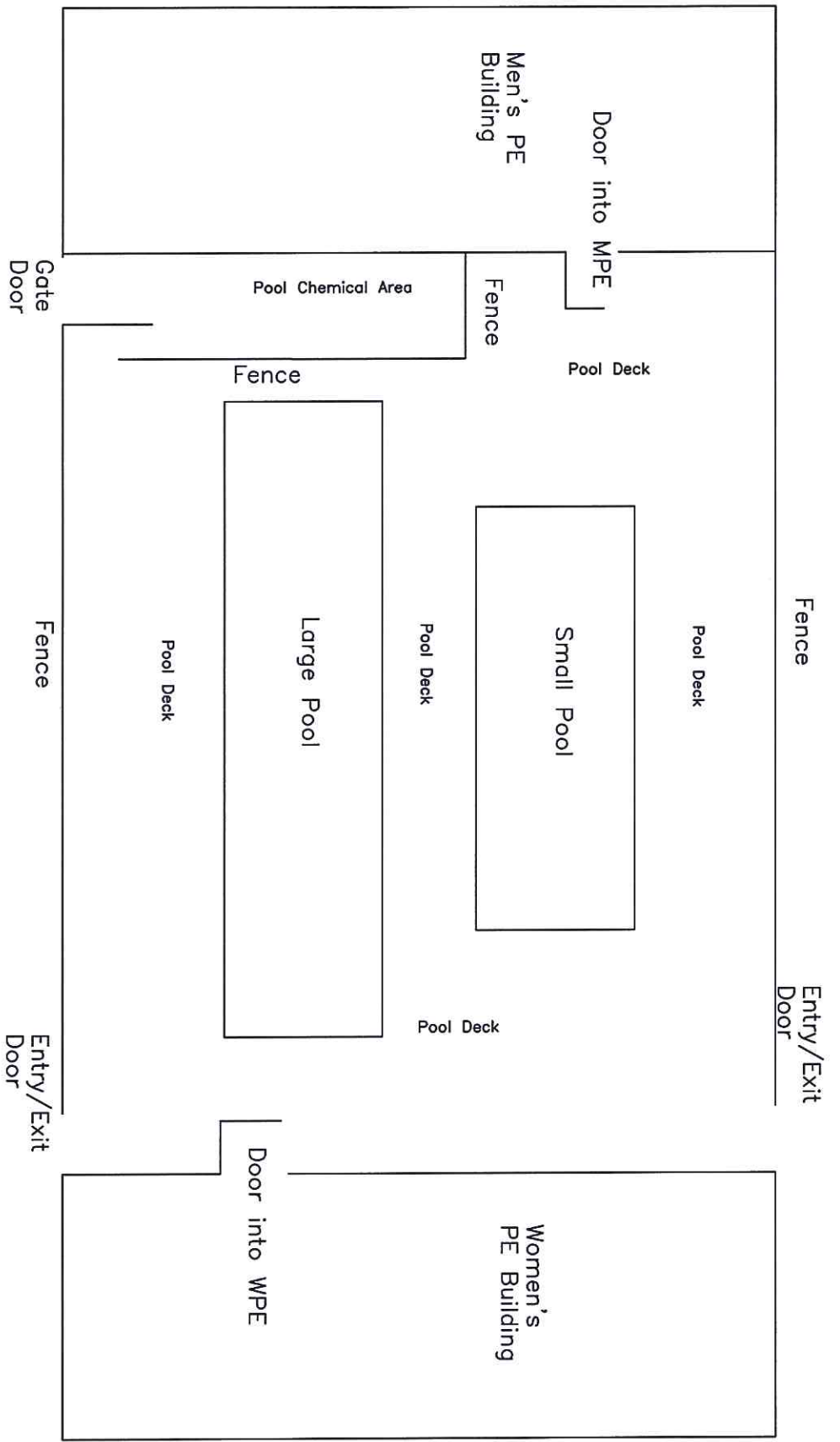
I certify that I have received and read the information contained in the MJC Pool Safety plan and understand the rules and regulations outlined in the Modesto Junior College Pool safety plan.

Name (Please Print): _____

Signature: _____

Date: _____

Exhibit A



Pool Deck Storage
 *500lbs – Pulsar Plus Dry Chlorinator Briquettes
 *300gallon tank – Hypochloric Acid

East Campus Pool Deck	
Campus: East	Construction Date: 1998
Drawing Date: April 2013	
FE= Fire Extinguishers	*Reportable Quantities
Square Footage:	Drawn By: CN

Bill Of Lading#: 0200331
Product: HYDROCHLORIC ACID 15%

BRENNTAG

July 5, 2013

SAFETY CONTACT
YOSEMITE COMMUNITY
COLLEGE DISTRICT
P O BOX 4065
MODESTO, CA 95352

To Whom It May Concern,

Enclosed please find the Material Safety Data Sheet (MSDS) for the material listed below. Either you recently purchased this product from us, and/or we are furnishing this MSDS as required by the notification procedures under Section 313 of SARA Title III. The law requires that you distribute these to those people in your company who are involved in the use and/or handling of these chemicals.

Product Name: HYDROCHLORIC ACID 15%

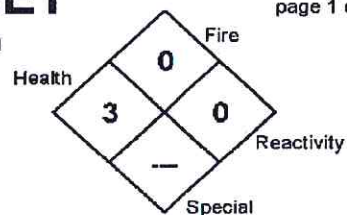
We thank you for your order and hope we may continue to merit serving your future requirements.

Copy → Yolanda Avila # Security 7/9/13

MATERIAL SAFETY DATA SHEET

BRENNTAG

NFPA 704 DESIGNATION
HAZARD RATING



4=Extreme
3=High
2=Moderate
1=Slight
0=Insignificant

Brenntag MSDS #:	BPI-00601
MSDS Revision/Issue Date:	01/16/12
Supersedes Revision Date:	10/20/11

1. CHEMICAL PRODUCT IDENTIFICATION & COMPANY IDENTIFICATION

PRODUCT IDENTIFIER: Hydrochloric Acid 10 – 20%

GENERAL USE: Used in the production of chlorides; pickling and cleaning of metal products; as a catalyst and solvent in organic syntheses; and removing scale from boilers and heat exchange equipment.

PRODUCT DESCRIPTION: An inorganic acid solution. Synonyms include Chlorohydric acid, Hydrochloride, Hydrogen Chloride, Hydrochloric Acid and spirits of salt.

INFORMATION PROVIDED BY: Brenntag Pacific, Inc.
10747 Patterson Place
Santa Fe Springs, CA 90670

EMERGENCY PHONE NUMBERS

CHEMTREC: 800-424-9300

For MSDS call: **PHONE: 562-903-9626**

2. COMPOSITION & INFORMATION ON INGREDIENTS

COMPONENT	CAS #	OSHA HAZARD	WT %	ACGIH		OSHA	
				TLV _(TWA)	STEL	PEL _(TWA)	STEL
Hydrochloric Acid	7647-01-0	Corrosive; Lung toxin	10 - 20	None	None	None	None
				Ceiling: 2 ppm		Ceiling: 5 ppm	

NDA = No Data Available N/A = Not Applicable

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Clear, colorless to light yellow liquids having a sharp, acidic odor. The vapors, mists and liquid may cause severe irritation or burns to the eyes, skin and respiratory tract. Inhalation of high vapor or mist concentrations can cause permanent lung damage. The NIOSH I.D.L.H. for Hydrogen Chloride is: 50 ppm.

POTENTIAL HEALTH EFFECTS

INHALATION: Inhalation of the vapors or mists may cause severe irritation or burns to the nose, mouth, throat, mucous membranes and lungs. Symptoms of exposure may include sneezing, coughing, choking, chest pain, shortness of breath and impairment of lung function. Inhalation of high vapor or mist concentrations can cause permanent lung damage.

EYE CONTACT: Exposure to the vapors, mists or liquids may cause severe eye irritation or burns. Symptoms of exposure may include tearing, redness, swelling, pain and possible mucous discharge. Direct contact with the liquid can be corrosive to the eye and can cause corneal damage with impairment of vision, unless promptly treated.

SKIN CONTACT: Exposure to the mists or liquids may cause severe skin irritation or burns. Symptoms of exposure may include redness, swelling, discomfort or pain and possible scab formation. Prolonged skin exposure may cause destruction of the dermis with impairment of the skin, at site of contact, to regenerate. No published data indicates these products are absorbed through the intact skin.

INGESTION: Ingestion can cause severe irritation and/or burns to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration.

CHRONIC: Repeated inhalation exposure above the ACGIH-TLV or OSHA-PEL may cause chronic bronchitis, impairment of lung function and possible permanent lung damage. Otherwise, the chronic exposure effects are expected to be the same as for acute exposure.

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PRODUCT IDENTIFIER: **Hydrochloric Acid 10 – 20%**

page 2 of 6

4. FIRST AID MEASURES

- INHALATION:** If inhaled, immediately move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; use the Holger Nielsen method (back pressure-arm lift) or proper respiratory device. If breathing is difficult, give oxygen. Call a physician.
- EYE CONTACT:** In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower lids occasionally. Remove contact lenses, if worn. Get medical attention immediately.
- SKIN CONTACT:** In case of contact, immediately flush skin with plenty of clean running water for at least 15 minutes, while removing contaminated clothing and shoes. If burn or irritation occurs, call a physician.
- INGESTION:** If swallowed, DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give plenty of water to drink. Never give anything by mouth to an unconscious person.
- NOTE TO PHYSICIANS:** The hazard associated with these products are their corrosivity to the eyes, skin and mucous membranes. Inhalation exposure above the ACGIH / OSHA Ceiling levels may damage the lungs and, at high concentrations, severe breathing difficulties may occur, which may be delayed in onset and may be due to pulmonary edema (fluid in the lung), laryngeal edema or spasm.
- If ingested, consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered.
- Treat exposure symptomatically.

5. FIRE FIGHTING MEASURES

- Flashpoint and Method:** This product does not flash.
- Flammable Limits (in air, % by volume)** Lower: Not applicable Upper: Not applicable
- Autoignition Temperature:** Not applicable
- GENERAL HAZARD:** These products are not combustible but will generate flammable / explosive Hydrogen gas on contact with many metals. The Uniform Fire Code health hazard classification for this product is: **Corrosive (Acidic)**. Dilute solutions of these products may also be corrosive. These products may produce hazardous vapors and hazardous decomposition products.
- FIRE FIGHTING INSTRUCTIONS:** **EXTINGUISHING MEDIA:** Water, foam, CO₂ or dry chemicals.
Use a water spray or fog to cool the containers exposed to the heat of a fire.
- FIRE FIGHTING EQUIPMENT:** Fire fighters should wear full protective equipment, including self-contained breathing apparatus.
- HAZARDOUS COMBUSTION PRODUCTS:** When heated to dryness and decomposition, they emit very toxic Hydrochloric Acid vapors and possible chloride fumes.

6. ACCIDENTAL RELEASE MEASURES

- LAND SPILL:** Wearing recommended protective equipment and clothing, dike the spill and pick up the bulk of liquid using pumps or a vacuum truck, or absorb the liquid in sand or a commercial absorbent. Place in approved containers for recovery, disposal, or satellite accumulation. Neutralize the acidity of the remaining liquid, using soda ash, lime, or other agent appropriate for neutralizing acidic liquids. Flush the spill area with water; collect the rinsates for disposal or sewer, as appropriate.
- Inhalation Hazard: when an inhalation hazard is indicated, use cleaning methods that do not generate dust, aerosols, fumes, vapors or mists. Respiratory protective equipment is required during the clean-up of the spill.
- WATER SPILL:** Wear recommended protective equipment and clothing if contact with hazardous material can occur. Stop or divert water flow. Dike contaminated water and remove for disposal and/or treatment. As appropriate, notify all downstream users of possible contamination.

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7. HANDLING AND STORAGE

STORAGE TEMPERATURE: Below 38° C. (100° F.) **STORAGE PRESSURE:** Ambient

GENERAL: Store in a cool, dry, well-ventilated area away from incompatible materials and products. Do not store in direct sunlight. Do not get these products in eyes, on skin or on clothing. Wear recommended personnel protective equipment when handling these products. Do not breathe vapors, mists or aerosols. Use only with adequate ventilation. Keep the containers tightly closed when not in use. Wash thoroughly after handling these products.

Do not mix these products with concentrated alkali. Never allow these products, or their solutions, to contact Aluminum, Magnesium, Zinc or galvanized surfaces as this will result in corrosion of the metal and it will generate flammable / explosive Hydrogen gas.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL MEASURES: Use a local or general, mechanical exhaust ventilation system capable of maintaining emissions, in the work area, below the OSHA, ACGIH Ceiling level or those levels that may cause irritation..

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

RESPIRATOR: For exposure above the OSHA, ACGIH Ceiling level or those levels that may cause irritation, wear a NIOSH approved full facepiece or half mask air-purifying cartridge respirator equipped with an acid gas cartridge, or supplied air. For exposure to Hydrogen Chloride above 50 ppm, a full facepiece supplied air respirator or self-contained breathing apparatus (SCBA) operated in the pressure demand and positive pressure mode is recommended by NIOSH.

EYES: Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full facepiece respirator is worn.

GLOVES: Wear Neoprene, Butyl Rubber, Viton, Viton / Butyl Rubber or Responder gloves.

CLOTHING & EQUIPMENT: Wear a Neoprene or Butyl Rubber apron or full protective clothing when handling these products. An eye wash station and safety shower should be available in the work area.

FOOTWEAR: Wear Neoprene or Butyl Rubber boots.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless to light yellow	Bulk Density (pounds/ft³):	Not applicable
Physical State:	Liquid	Vapor Pressure:	13 mm Hg @ 20° C. (HCl gas)
Odor:	Sharp, acidic	Vapor Density (air=1):	1.3 (HCl gas)
Odor Threshold:	1 ppm (HCl in air)	Evaporation Rate (n-Butyl Acetate=1):	Approximately 1
Molecular Formula:	HCl (in water)	VOC Content:	Not applicable
Molecular Weight:	36.46 (in water)	% Volatile:	100
Boiling Point:	Initial, less than 100° C. (212° F.)	Solubility in H₂O:	Complete
Freezing/Melting Point:	Less than -17.8° C. (0° F.)	Octanol/Water Partition Coefficient:	No data available
Specific Gravity:	About 1.047 to 1.100 @ 20° C.	pH (as is):	Less than 1.0
Density (pounds/gallon):	About 8.74 to 9.18	pH (1% solution):	Less than 2.0

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

CONDITIONS TO AVOID: Hot storage

INCOMPATIBLE MATERIAL: Most metals (especially Aluminum, Magnesium, Zinc and their alloys), alkali and caustics, organic amines, sulfides, sulfites, cyanides, chlorine releasers and strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to dryness and decomposition, it emits very toxic Hydrochloric Acid vapors and chloride fumes.

SENSITIVITY TO MECHANICAL IMPACT: These products are not sensitive to mechanical impact.

SENSITIVITY TO STATIC DISCHARGE: These products are not sensitive to static discharge.

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PRODUCT IDENTIFIER: **Hydrochloric Acid 10 – 20%**

page 4 of 6

11. TOXICOLOGICAL INFORMATION

Components: Hydrochloric Acid
Eye Contact: Rabbit: 5 mg/30 seconds, rinsed; Mild
Skin Contact: No data available
Oral Rat LD₅₀: No data available
Dermal Rabbit LD₅₀: No data available
Inhalation Rat LC₅₀: 3,124 ppm/1 hour
Human Data: Inhalation Human LC₁₀: 3,000 ppm/5 minutes
Other Toxicological Data: Oral Rabbit LD₅₀: 900 mg/kg
Carcinogenicity: No data available
Teratogenicity: Inhalation Rat TC₁₀: 450 mg/m³/1 hour (female 1 Day prior to mating) Effects on Embryo or Fetus – Fetotoxicity; Specific Developmental Abnormalities - Homeostasis
Mutagenicity: Hamster Cytogenetic Analysis; lung: 30 mmol/Liter
Synergistic Products: None reported
Target Organs: Eyes, Skin, Mucous membranes, Lungs, Gastrointestinal tract & Teeth
Medical Conditions Aggravated By Exposure: Skin, Respiratory or Gastrointestinal disorders

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:
 These products are completely soluble in water and will significantly affect the pH, of the water. No specific environmental fate data is available on these products.
ENVIRONMENTAL CONSIDERATIONS:
 The aquatic toxicity for Hydrogen Chloride is: 96 hour TLM *Gambusia affinis* (mosquito fish) = 282 ppm (fresh water). Cockle 48 hour LC₅₀ = 330 to 1,000 mg/Liter. Trout 24 hour LC₁₀₀ = 10 mg/Liter.

13. DISPOSAL CONSIDERATIONS

RCRA 40 CFR 261 CLASSIFICATION: Corrosive Waste
U.S. EPA WASTE NUMBER/DESCRIPTION: D002
 If these products are disposed of as shipped, they meet the criteria of a hazardous waste as defined under 40 CFR 261 due to their corrosivity. If these products becomes a waste, they will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly. As a hazardous liquid waste, they must be disposed of in accordance with local, state, and federal regulations in a permitted hazardous waste treatment, storage, and disposal facility.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Hydrochloric acid, solution
Hazard Class: 8 **UN Number:** UN1789 **Packing Group:** II
Primary Label: Corrosive **Subsidiary Label(s):** None Required
Primary/Subsidiary Placards: Corrosive
DOT Reportable Quantity (RQ): 5,000 pounds (HCl) **RQ for Product:** 25,000 to 50,000 pounds
Marine Pollutant: No
2008 North American Emergency Response Guidebook No.: 157
TDG PROPER SHIPPING NAME: HYDROCHLORIC ACID, SOLUTION
Hazard Class: 8 **UN Number:** UN1789 **Packing Group:** II
Primary Label: Corrosive **Subsidiary Label(s):** None Required
Primary/Subsidiary Placards: Corrosive
TDG Reportable Quantity (RQ):[#] At least 5 kg or 5 liters.
TDG Schedule XII: No (Not greater than 20% concentration)
Regulated Limit (RL):^{##} 230 kg (HCl) **RL for Product:** 1,150 to 2,300 kg
Other Shipping Information: None

[#] Canadian Transportation of Dangerous Goods Regulations (TDGR), Part IX, Table I, Quantities or levels for Immediate Reporting: releases of reportable quantities, RQ, that meet the definition of a "dangerous occurrence" (a threat to life, health, property, or the environment) must be reported to the appropriate authorities as outlined in TDGR 9.13(1) and 9.14(1).
^{##} Reporting to Environment Canada is required for any releases exceeding the regulated limits, RL, of 9.2 materials (primary or secondary). The regulated limits are found in Schedule XIII of the TDGR.

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PRODUCT IDENTIFIER: **Hydrochloric Acid 10 – 20%**

page 5 of 6

15. REGULATORY INFORMATION

COMPONENTS: Hydrochloric Acid
OSHA Target Organs: Eyes, Skin, Mucous membranes,
Lungs, Gastrointestinal tract &
Teeth

Carcinogenic Potential:

Regulated by OSHA: No
Listed on NTP Report: No
Listed by IARC: Yes
IARC Group: Group 3
ACGIH Appendix A: (A4)
A1 Confirmed Human: Not applicable
A2 Suspected Human: Not applicable

U.S. EPA Requirements

Release Reporting

CERCLA (40 CFR 302)

Listed Substance: Yes
Reportable Quantity: 5,000 pounds
Category: D
RCRA Waste No.: None listed

Unlisted Substance: Not applicable
Reportable Quantity: Not applicable
Characteristic: Not applicable
RCRA Waste No.: Not applicable

SARA TITLE III

Section 302 & 303 (40 CFR 355):

Listed Substance: Not listed
Reportable Quantity: Not applicable
Planning Threshold: Not applicable

Section 311 & 312 (40 CFR 370):

Hazard Categories (product): **Fire:** N **Sudden Release of Pressure:** N **Reactive:** N **Acute Health:** Y **Chronic Health:** N
Planning threshold: 10,000 pounds

Section 313 (40 CFR 372):

Listed Toxic Chemical: Yes (Acid aerosols, mists & vapors)
Reporting Threshold: 25,000 pounds

U.S. TSCA Status

Listed (40 CFR 710): Yes

State Regulations

State of California: Safe Drinking Water and Toxins Enforcement Act, 1986 (Proposition 65):

Carcinogen: No
Reproductive Toxin: No

Other Regulations

State Right To Know Laws: MA, NJ, PA

Canadian Regulations

Product Information:

Controlled Product: Yes
WHMIS Hazard Symbols: **Materials Causing Immediate and Serious Toxic Effect; Corrosive Material**
WHMIS Class & Division: **D.1B; E**

Ingredient Information:

IDL Substance: Yes
DSL or NDSL Lists: DSL

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PRODUCT IDENTIFIER: **Hydrochloric Acid 10 – 20%**

page 6 of 6

16. OTHER INFORMATION

EPA Registration number: Not applicable

Approved Product Uses: Not applicable

Special Notes:

These products do not contain any material, which the State of California has found to cause cancer and/or birth defects or other reproductive harm.

SARA 302 Additional Information:

Hydrogen Chloride gas is an extremely hazardous substance – RQ = 5,000 pounds; TPQ = 500 pounds.

The **DEA** regulates Hydrochloric Acid as an essential chemical only when it is exported to the following countries: Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, French Guyana, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela.

Special Instructions:

Store these Hydrochloric Acid 10 – 20 % solutions in a cool, dry, well-ventilated area away from incompatible materials and products.

Do not add these products to hypochlorite bleaches, chlorine sanitizers or chlorinated cleaners as this generates toxic, corrosive Chlorine gas.

Do not add these products to strong oxidizers as this may also generate toxic, corrosive Chlorine gas.

MSDS Revision Information: Information Revised This Issue Date: **Update language and information in sections 3 and 16.**

Form Revision made 2/19/09

MSDS Distributed by: Brenntag Pacific, Inc.

Prepared By: Edward Doheny

Date Prepared: January 16, 2012

This Material Safety Data Sheet is provided as an information resource only. It should not be taken as a warranty or representation for which Brenntag Pacific, Inc. assumes legal liability. While Brenntag Pacific, Inc. believes the information contained herein is accurate and compiled from sources believed to be reliable, it is the responsibility of the user to investigate and verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with applicable federal, state, and local regulations.

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**Arch
Chemicals,
Inc.**

**MATERIAL SAFETY
DATA SHEET**

FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL: 1-800-654-6911
 FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®: 1-800-424-9300
 FOR ALL MSDS QUESTIONS & REQUESTS, CALL: 1-800-511-MSDS

PRODUCT NAME: PULSAR® PLUS DRY CHLORINATOR BRIQUETTES
 EPA Registration Number: 1258-1179

1. PRODUCT AND COMPANY IDENTIFICATION

Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204	REVISION DATE:	05/05/2006
	SUPERCEDES:	04/05/2002
	MSDS Number:	000000000844
	SYNONYMS:	None
	CHEMICAL FAMILY:	Hypochlorite
	DESCRIPTION / USE:	Sanitizer and Oxidizer
	FORMULA:	Not Applicable/Mixture

2. HAZARDS IDENTIFICATION

OSHA Hazard Classification:	Oxidizer, Toxic by inhalation., Corrosive, Eye and skin hazard, Lung toxin
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Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	No known or reported interactions.
Medical Conditions Aggravated:	Asthma, respiratory and cardiovascular disease

Human Threshold Response Data

Odor Threshold	Approximately 1.4 mg/m3 (based on odor threshold of chlorine)
Irritation Threshold	Approximately 13-22 mg/m3 (based on irritation threshold of chlorine)

Hazardous Materials Identification System / National Fire Protection Association Classifications

<u>Hazard Ratings :</u>	<u>Health</u>	<u>Flammability</u>	<u>Physical / Instability</u>	<u>PPI / Special hazard.</u>
HMIS	3	0	1	
NFPA	3	0	1	OX

Copy → Yolanda Arila 7/9/13

Copy sent to Marsha @ Security 4/26/13



Immediate (Acute) Health Effects

Inhalation Toxicity: HARMFUL IF PRODUCT IS INHALED IN HIGH CONCENTRATIONS. CAUSES BURNS TO RESPIRATORY TRACT. Inhalation of dust or vapor from this product can be irritating to the nose, mouth, throat and lungs. In confined areas, mechanical agitation can result in high levels of dust, and reaction with incompatible materials (as listed in Section 10) can result in high concentrations of chlorine vapor, either of which may result in burns to the respiratory tract, producing lung edema, shortness of breath, wheezing, choking, chest pains, impairment of lung function and possible permanent lung damage.

Skin Toxicity: CAUSES SKIN BURNS. Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling, and scab formation. Prolonged skin exposure may cause permanent damage.

Eye Toxicity: CAUSES BURNS TO EYES. Severe irritation and/or burns can occur following eye exposure. Direct contact may cause impairment of vision and corneal damage.

Ingestion Toxicity: MAY BE FATAL IF SWALLOWED. CAUSES BURNS TO DIGESTIVE TRACT. Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration or perforation. Due to the corrosive nature of this product, ingestion may be fatal.

Acute Target Organ Toxicity: This product may be severely irritating and/or corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and the upper respiratory tract.

Prolonged (Chronic) Health Effects

Inhalation: Repeated inhalation exposure may cause impairment of lung function and permanent lung damage.

Skin Contact: Effects similar to those from acute exposure. Effects secondary to tissue destruction may also occur upon prolonged or repeated exposure.

Ingestion: There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.

Chronic Target Organ Toxicity: None known

Supplemental Health Hazard Information : No additional health information available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>CAS OR CHEMICAL NAME</u>	<u>CAS #</u>	<u>% RANGE</u>
CALCIUM HYPOCHLORITE	7778-54-3	60 - 80
SODIUM CHLORIDE	7647-14-5	10 - 20
CALCIUM CHLORATE	10137-74-3	0 - 5



CALCIUM CHLORIDE	10043-52-4	0 - 5
CALCIUM HYDROXIDE	1305-62-0	0 - 4
CALCIUM CARBONATE	471-34-1	0 - 4
1,2,4-BUTANETRICARBOXYLIC ACID, 2- PHOSPHONO-, SODIUM SALT	40372-66-5	0.2 - 0.8
Water	7732-18-5	4 - 10

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 Action Network 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.



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
Autoignition Temperature: Not applicable
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 fire fighting.
Upper Flammable / Explosive Limit, % in air: Not applicable
Lower Flammable / Explosive Limit, % in air: Not applicable

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations: Response to this material requires the use of a full encapsulated suit and a NIOSH approved positive pressure supplied air respirator.

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 at 1-800-6546-911 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. Immediately remove all product in 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.



Additional Spill Information :

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.

7. HANDLING AND STORAGE

Handling:

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.

Storage:

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.

Shelf Life Limitations:

Shelf life (that is, the period of time before the product goes below stated label strength) is determined by storage time and temperatures. Do not store product at temperatures above 52 Deg.C (125 Deg.F). Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products. When stored under moderate temperature conditions, product will maintain stated label strength for approximately two years. Prolonged storage at 35 Deg.C (95 Deg.F) or above 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.

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.

Do Not Store At temperatures Above:

Storage above this temperature may result in rapid decomposition, evolution of chlorine gas and heat sufficient to ignite combustible products. 52 °C / 125 °F

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation:

Use local exhaust ventilation to minimize dust and chlorine level where industrial use occurs. Otherwise ensure good general ventilation.

Protective Equipment for Routine Use of Product



Respiratory Protection : Wear a NIOSH approved respirator if dusts are created. NIOSH approved full face piece air-purifying respirator with chlorine cartridges and dust/mist prefilter.

Skin Protection : Wear impervious gloves to avoid skin contact. Where industrial use occurs, full impermeable suit may be required.

Eye Protection: Use safety glasses with side shields. Where industrial use occurs, chemical goggles may be required.

Protective Clothing Type: Neoprene (This includes: gloves, boots, apron, protective suit)

Exposure Limit Data

<u>CHEMICAL NAME</u>	<u>CAS #</u>	<u>Name of Limit</u>	<u>Exposure</u>
CALCIUM HYPOCHLORITE	7778-54-3	ARCH-ROEG*	1 mg/m3 TWA
CALCIUM HYPOCHLORITE	7778-54-3	NIOSH-IDLH	37 - 48 mg/m3 based on IDLH concentration of chlorine
CALCIUM HYDROXIDE	1305-62-0	ACGIH	5 mg/m3 TWA
CALCIUM HYDROXIDE	1305-62-0	OSHA Z1	5 mg/m3 PEL Respirable fraction.
CALCIUM HYDROXIDE	1305-62-0	OSHA Z1	15 mg/m3 PEL Total dust.
CALCIUM CARBONATE	471-34-1	ACGIH	10 mg/m3 TWA The value is for particulate matter containing no asbestos and <1% crystalline silica.
CALCIUM CARBONATE	471-34-1	OSHA Z1	15 mg/m3 PEL Total dust.
CALCIUM CARBONATE	471-34-1	OSHA Z1	5 mg/m3 PEL Respirable fraction.

*ARCH-ROEG: Arch Recommended Occupational Exposure Guideline.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: solid,
 Form: Tablet
 Color: white
 Odor: Chlorine-like
 Molecular Weight: 143.00
 Specific Gravity : Not applicable
 pH : 10.4 - 10.8 (1% solution in neutral, distilled water) (@ 25 Deg. C)
 Boiling Point: Not applicable
 Freezing Point: Not applicable
 Melting Point: Not applicable
 Density: 1.9g/cc
 Vapor Pressure: (@ 25 Deg. C) Not applicable
 Vapor Density: Not applicable
 Viscosity: Not applicable
 Fat Solubility: No data



Solubility in Water:	18 % (@ 25 Deg. C) Product also contains calcium hydroxide and calcium carbonate which will leave a residue.
Partition coefficient n-octanol/water:	Not applicable
Evaporation Rate:	Not applicable
Oxidizing:	Oxidizer
Volatiles, % by vol.:	Not applicable
VOC Content	Not applicable
HAP Content	Not applicable

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 oxidizer. Not pyrophoric. Not an organic peroxide. Not water reactive. Arch calcium hypochlorite products meet the specifications of ASTM method E-487-74 as set forth in 49 CFR 173.21.
Conditions to Avoid:	May be unstable at temperatures above 170 Deg. C (338 Deg. F), Avoid storage at temperatures above 52 Deg. C (125 Deg. 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.
Hazardous Decomposition Products:	Chlorine
Decomposition Temperature:	170 °C - 180 °C , 338 °F- 356 °F

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value:

CALCIUM HYPOCHLORITE	LD50 (65% calcium hypochlorite)	850 mg/kg	Rat
SODIUM CHLORIDE	LD50 =	3,000 mg/kg	Rat
CALCIUM CHLORIDE	LD50 =	1,000 mg/kg	Rat

Dermal LD50 value:

CALCIUM HYPOCHLORITE	LD50 (65% calcium hypochlorite)	> 2,000 mg/kg	Rabbit
SODIUM CHLORIDE	LD50 >	10,000 mg/kg	Rabbit
CALCIUM CHLORIDE	LD50 =	2,630 mg/kg	Rat

Inhalation LC50 value:

CALCIUM HYPOCHLORITE	Inhalation LC50 1 HOUR (65% calcium hypochlorite), (Nose Only)	= 2.04 MG/L
CALCIUM HYPOCHLORITE	Inhalation LC50 4 HOUR (65% calcium hypochlorite), (Nose Only)	= 0.51 MG/L



SODIUM CHLORIDE
CALCIUM CHLORIDE

Inhalation LC50 1 HOUR > 42 MG/L Rat
No data

Product Animal Toxicity

Oral LD50 value: LD50 850 mg/kg Rat
Dermal LD50 value: LD50 CAUSES BURNS TO EYES AND SKIN. > 2,000 mg/kg Rabbit
Inhalation LC50 value: LC50 1.00 HOUR Based on the acute inhalation toxicity for chlorine. Approximately 1.3 MG/L Rat
Subchronic / Chronic Toxicity: There are no known or reported effects from repeated exposure.

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 or 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.

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.

12. ECOLOGICAL INFORMATION

Ecological Toxicity Values for: CALCIUM HYPOCHLORITE

Bluegill - (nominal, static). 96 HOUR LC50 0.088 mg/l



- Rainbow trout (*Salmo gairdneri*), - (nominal, static). 96 HOUR LC50 0.16 mg/l
- Daphnia magna, - (nominal, static). 48 HOUR LC50 0.11 mg/l
- Bobwhite quail - Dietary LC50 > 5,000 ppm
- Mallard ducklings - Dietary LC50 > 5,000 ppm
- Bobwhite quail - Oral LD50 3,474 mg/kg

Ecological Toxicity Values for: CALCIUM CHLORIDE

- Bluegill - (nominal, static). 96 HOUR LC50 = 10,650 mg/l
- Mosquito fish - (nominal, static). 96 HOUR LC50 = 13,400 mg/l
- Fathead minnow (*Pimephales promelas*), - (nominal, static). 96 HOUR LC50 = 4,630 mg/l
- Daphnia magna, - (nominal, static). 48 HOUR LC50= 2,770 mg/l
- Ceriodaphnia dubia - (nominal, static). 48 HOUR LC50= 1,830 mg/l
- Nitzschia linearis (diatom) - (nominal, static). 5 day LC50 = 3,130 mg/l

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: D001. 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

14. TRANSPORT INFORMATION

Land (US DOT): UN1748 CALCIUM HYPOCHLORITE, DRY MIXTURE 5.1 II
Water (IMDG): UN1748 CALCIUM HYPOCHLORITE, DRY MIXTURE, 5.1 II

Air (IATA): Flash Point: Not applicable
UN1748 CALCIUM HYPOCHLORITE, DRY MIXTURE, 5.1 II
Emergency Response Guide Number: ERG # 140



Transportation Notes:

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL. HAZARD LABEL/PLACARD: OXIDIZER
REPORTABLE QUANTITY: 10 lbs. (Per 49 CFR 172.101, Appendix)

15. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA): This is an EPA registered pesticide.
EPA Pesticide Registration Number: 1258-1179

FIFRA Listing of Pesticide Chemicals (40 CFR 180): This product is regulated under the Federal Insecticide, Fungicide and Rodenticide Act. It must be used for purposes consistent with its labeling.

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311 / 312 (40 CFR 370.2):
Health Immediate (Acute) Health Hazard
Physical Fire and Reactivity

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

SARA III Threshold Planning Quantity: None established

Reportable Quantity (49 CFR 172.101, Appendix):

CERCLA Reportable quantity: CALCIUM HYPOCHLORITE
Value: 10lbs

SARA III Reportable quantity: None established

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

SARA III De minimis concentration: None established

Clean Air Act Toxic ARP Section 112r:

CAA 112R None established

Clean Air Act Socmi:

HON SOC None established

Clean Air Act VOC Section 111:

CAA 111 None established

Clean Air Act Haz. Air Pollutants Section 112:

CAA None established

CAA 112I None established

CAA AP None established



**State Right-to-Know Regulations Status of Ingredients
Pennsylvania:**

CAS #	COMPONENT NAME
10137-74-3	CALCIUM CHLORATE
1305-62-0	CALCIUM HYDROXIDE
7778-54-3	CALCIUM HYPOCHLORITE

PENN RTK

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

PENN RTK
08 1989
CHLORIC ACID, CALCIUM SALT

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

PENN RTK
08 1989
CALCIUM HYDROXIDE (CA(OH)₂)

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

PENN RTK
08 1989
HYPOCHLOROUS ACID, CALCIUM SALT

New Jersey:

CAS #	COMPONENT NAME
10137-74-3	CALCIUM CHLORATE
1305-62-0	CALCIUM HYDROXIDE

NJ RTK

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

NJ RTK
12 1989
Substance no. 0313
CALCIUM CHLORATE CHLORIC ACID, CALCIUM SALT

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

NJ RTK
12 1989
Substance no. 0322
CALCIUM HYDROXIDE

Massachusetts:

CAS #	COMPONENT NAME
10137-74-3	CALCIUM CHLORATE
1305-62-0	CALCIUM HYDROXIDE
7778-54-3	CALCIUM HYPOCHLORITE

MASS RTK

US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)



MASS RTK
04 1993
CALCIUM CHLORATE

US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

MASS RTK
04 1993
CALCIUM HYDROXIDE

US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

MASS RTK
04 1993
CALCIUM HYPOCHLORITE

California Proposition 65:

CAS #	COMPONENT NAME
US CA CRT	None established
US CA65CRT	None established

WHMIS Hazard Classification:
WHMIS

Canada. Canadian Environmental Protection Act (CEPA). WHMIS Ingredient Disclosure List (Can. Gaz., Part II, Vol. 122, No. 2)

WHMIS
01 1988
Threshold limits: 1%
English List no. 302
CALCIUM HYDROXIDE

16. OTHER INFORMATION

MSDS REVISION STATUS : Revised to meet the ANSI standard of 16 sections
SECTIONS REVISED: 14
Major References : Available upon request.

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