

GENERAL PERMIT REQUEST FOR COVERAGE  
 Hydrostatic Test Water or Water Supply System Water  
 WPDES Permit No. WI-0057681-4

For Department Use Only  
 Stamp Date Rec'd

State of Wisconsin  
 Department of Natural Resources

Rev. 1/8/13

FID #:

SECTION I: FACILITY LOCATION INFORMATION		
Facility Name <i>LA CROSSE WATER UTILITY AUTO FLUSH SYSTEM</i>	Contact <i>MARK JOHNSON</i>	Title <i>UTILITIES MANAGER</i>
Facility Address - Street <i>PARK PLAZA DRIVE</i>	Phone # <i>608-789-7536</i>	Fax # <i>608-789-7592</i>
City, State, Zip Code <i>LA CROSSE, WI 54601</i>	County <i>LA CROSSE</i>	Internet Address <i>johnsonm@cityoflacrosse.org</i>
Site Map: Attach a site map, such as a USGS topographic map, showing the location of the facility, the discharge site for groundwater discharges, and/or receiving water for surface water discharges.		

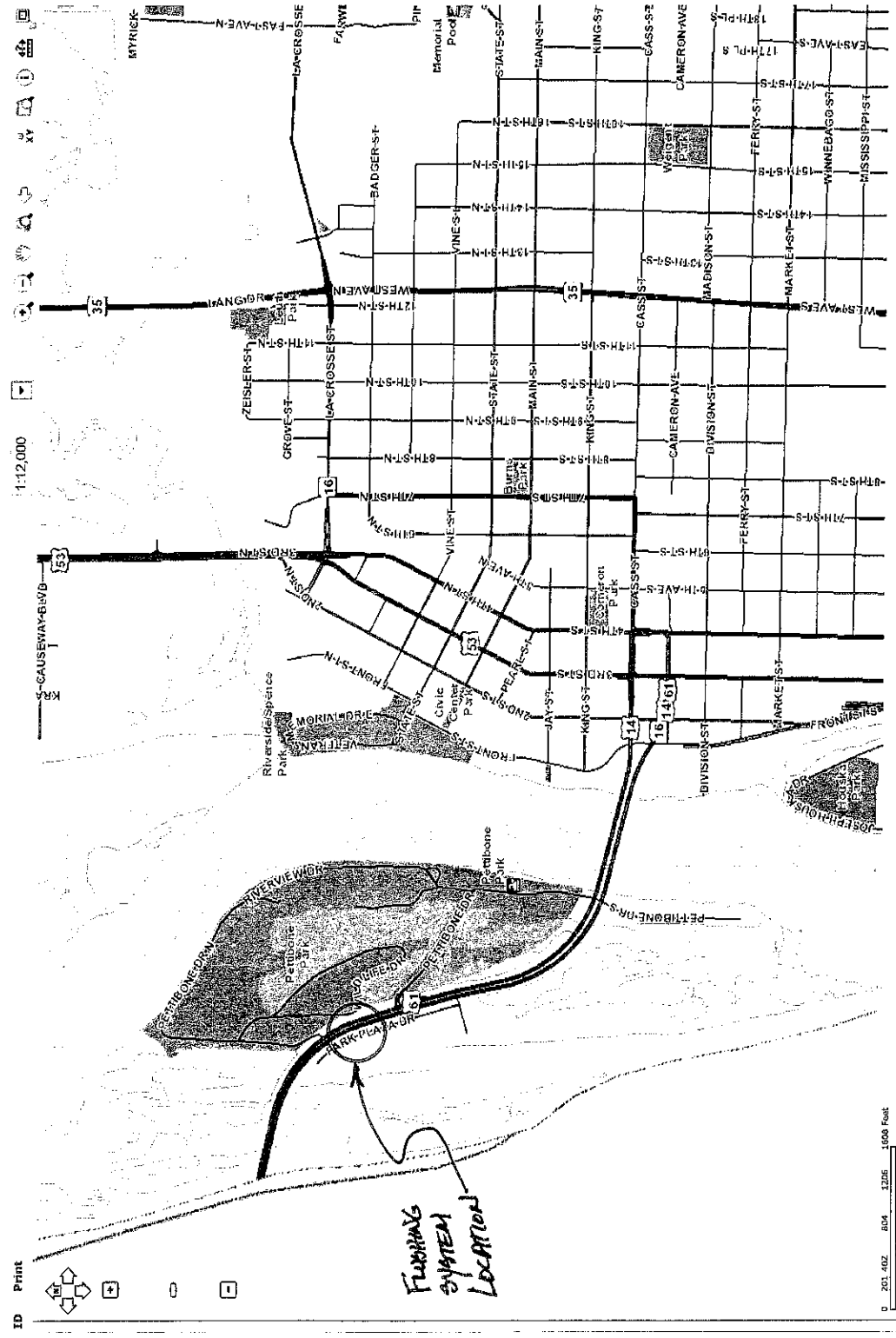
SECTION II: MAILING ADDRESS INFORMATION (Parent Company/Owner - if different from above)		
Parent Company/Owner <i>LA CROSSE WATER UTILITY</i>	Company Contact <i>MARK JOHNSON</i>	Phone # <i>608-789-7536</i>
Mailing Address - P.O. Box, Street, or Route <i>400 LA CROSSE ST.</i>	Title <i>UTILITIES MANAGER</i>	
City, State, Zip Code <i>LA CROSSE, WI 54601</i>	Fax # <i>608-789-7592</i>	Internet Address <i>johnsonm@cityoflacrosse.org</i>

Complete SECTION III only for those outfalls that are identified as surface or groundwater discharges in SECTION IV, question 1, of the ELIGIBILITY CHECKLIST.

SECTION III: DISCHARGE CHARACTERIZATION					
Type of Wastewater (check all that apply):	Outfall # (#1, #2, etc.)	Average Daily Flow (gallons of water discharged per day)	Type of Wastewater (check all that apply):	Outfall # (#1, #2, etc.)	Average Daily Flow (gallons of water discharged per day)
<input type="checkbox"/> Hydrostatic Test Water	#		<input type="checkbox"/> Well Disinfection	#	
	#			#	
	#			#	
<input checked="" type="checkbox"/> Water Supply Flushing	# <i>1</i>	<i>EST. 10,500 gal/hr ≈ 1500 gal/day</i>	<input type="checkbox"/> Distribution Pipe Disinfection	#	
	#			#	
	#			#	
<input type="checkbox"/> Water Tower Cleaning	#		<input type="checkbox"/> Other (describe type)	#	
	#			#	
	#			#	
<input type="checkbox"/> Well Testing	#		<input type="checkbox"/> Other (describe type)	#	
	#			#	
	#			#	

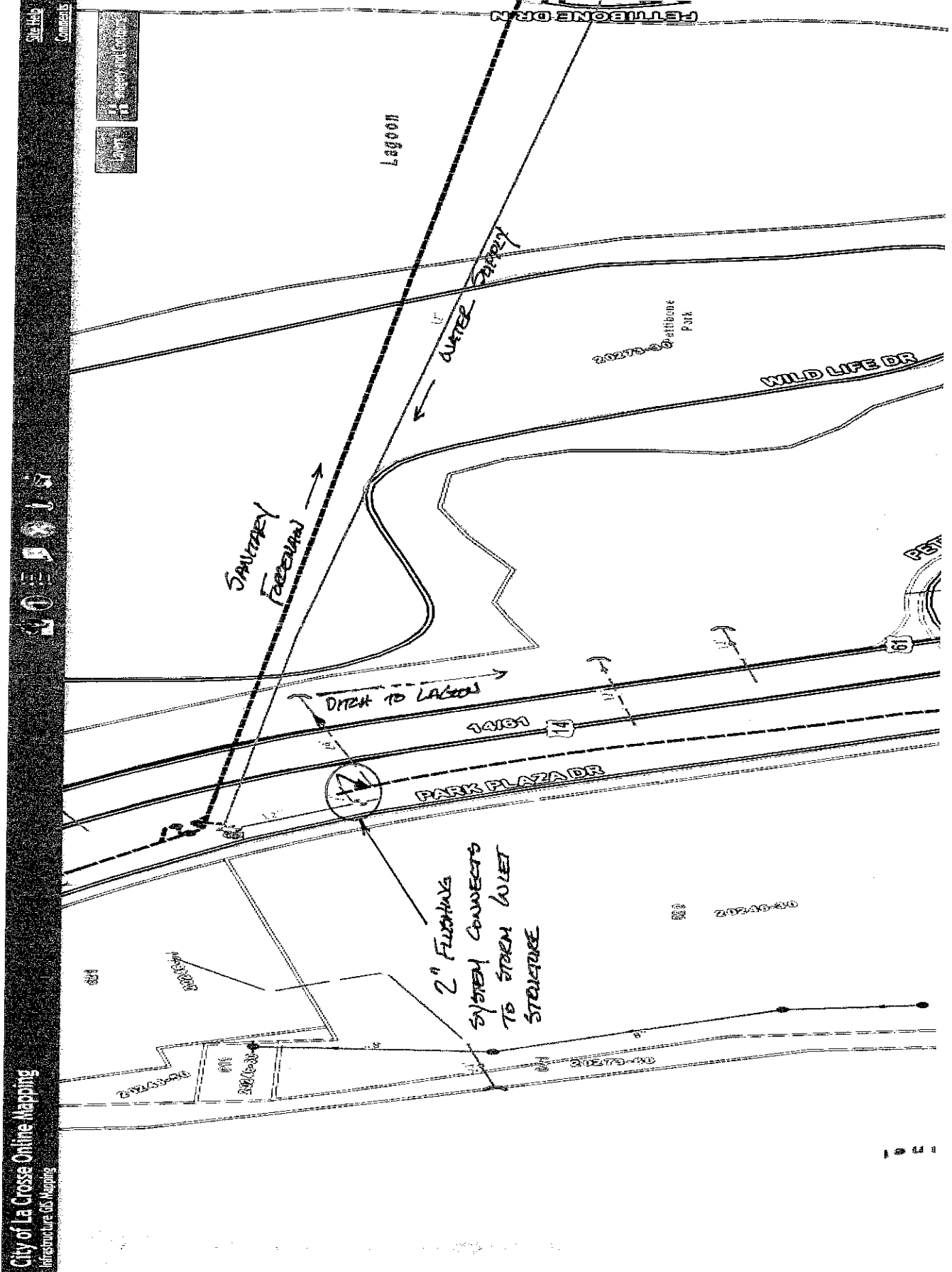
(Continued on next page)

LA CROSSE WATER UTILITY  
 AUTO FLUSH SYSTEM



FURNISHING  
 SYSTEM  
 LOCATION

LACROSSE WATER UTILITY  
Auto Flush System



**SECTION IV: ELIGIBILITY CHECKLIST**

1. What is the receiving water for your discharge, not including discharges of domestic wastes? If your facility has more than one outfall (an outfall is an individual discharge point, like a pipe, channel, or seepage pond, that wastewater enters prior to discharging to a receiving water), indicate in the space provided which outfalls go to groundwater and which go to surface waters. (*check all that apply*)

Groundwater (this includes infiltration of wastewater through the soil via irrigation, **septic systems and associated drain fields**, ditches, absorption ponds, etc.).

Outfall #(s): \_\_\_\_\_

Surface Water (this includes creeks, streams, rivers, and lakes and any ditches, stormsewers, and pipes that convey wastewater to a creek, stream, river, and lake).

Outfall #(s): 1 \_\_\_\_\_

What is the name of the surface water your discharge enters?

PETTANOWE LAGOON

How far is it from the point where it leaves your plant until it reaches the surface water (how far does it travel through storm sewers or drainage ditches)? (Check one):

- Less than 1000 feet  
 Between 1000 and 5000 feet  
 Greater than 5000 feet

Sanitary Sewer (discharge to a Publically Owned Treatment Works). A septic system is not considered a sanitary sewer. *If all discharges from your facility go to a sanitary sewer, you do not require regulation under a WPDES discharge permit. Therefore, skip the rest of the checklist and sign page 3. We will remove you from our tracking system. If at some point in the future operations at your facility result in a discharge, you will need to inform the Department.*

**For facilities with discharges to groundwater or surface waters, continue on to question #2.**

For Department Use Only:

- Eligible  
 Ineligible  
 ERW  
 ORW

2. Are any process wastewaters (wastewaters that come in contact with or the result of production operations at a facility such as contact cooling water or softener regeneration water), other than those wastewaters (or similar wastewaters) listed on page 1, Section III, discharged from your facility to surface waters or groundwater that are not covered under a separate WPDES permit?

- Yes *Your discharge is not eligible for this General Permit. Skip the rest of the checklist and complete the signatory requirements on page 3. Contact the Department to obtain an application for an individual WPDES discharge permit.*  
 No *If process wastewater discharges are covered under a separate WPDES permit, list the permit number below. WPDES Permit No. WI-0029561-08-0. Continue on to question #3.*

3. Does your discharge flow to a wetland?  
 No. *Continue on to question #4.*  
 Yes. *Continue on to question #4.*

For Department Use Only  
 NR 103 Completed: \_\_\_\_\_  
 N/A

**Question #4 and associated information submittal requirements do not apply to additives that are used on a regular basis by municipalities in municipal water supplies.**

4. Are Water Treatment Additives used in wastestreams that are discharged to surface waters or groundwater (scale and rust inhibitors, biocides such as chlorine, etc.)?

- No. *Complete the signatory requirements in Section V, below. Read the attached permit and comply with its requirements, submitting annual summaries as required by the permit.*  
 Yes. *Is the additive considered a biocide (biocides are designed to control biological growth, such as algae, in tanks, cooling towers, and other equipment)?*  
 No  Yes

For Department Use Only:

Water Treatment Additives  
 Completed: \_\_\_\_\_  
 Re-sent: \_\_\_\_\_

Additive follow-up necessary:  
 Yes  No

*For each outfall at which additives are used, you must submit the following information for each additive on Appendix A (at the back of this form):*

- a. *Material Safety Data Sheets (MSDS's) for each additive.*  
b. *Commercial name of the additive to be used.*

**SECTION IV: ELIGIBILITY CHECKLIST**

- c. Amount or concentration of additive to be used.
- d. Anticipated discharge concentration of additive.
- e. Proposed frequency of usage.

If your discharge enters a surface water, you must also submit the following information:

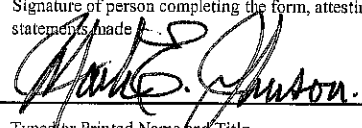
- f. At least one 48-hour LC<sub>50</sub> or EC<sub>50</sub> value for *Daphnia magna* and at least one 96-hour LC<sub>50</sub> or EC<sub>50</sub> value for either fathead minnow, rainbow trout, or bluegill.

**NOTE:** The above information should be provided to you by your additive supplier.

Complete the signatory requirements in Section V, below. Read the attached permit and comply with its requirements, submitting annual discharge summaries as required by the permit or more frequently if notified to do so by the Department.

**End of Checklist - Complete Signatory Requirements Below**

**SECTION V: SIGNATORY REQUIREMENTS**

Signature of person completing the form, attesting to the accuracy and completeness of the statements made 	Date Signed
Typed or Printed Name and Title <b>MARK E. JOHNSON - UTILITIES MANAGER</b>	Phone # <b>608-789-7588</b>
This form must be signed by the official representative of the permitted facility who is: the owner, the sole proprietor for a sole proprietorship, a general partner for a partnership, a ranking elected official or other duly authorized representative for a unit of government, a manager for a limited liability company, or an responsible corporate officer of at least the level of manager having overall responsibility for the operation of the facility for a corporation. If this form is not signed, or is found to be incomplete, it will be returned.	
Signature	Date Signed
Typed or Printed Name and Title	Phone #
Fax #	Internet Address

Mail to: Wisconsin Department of Natural Resources,  
 Water Permits Central Intake - WT/3  
 P.O. Box 7185  
 Madison, WI 53707-7185



**Additional information related to**  
**GENERAL PERMIT REQUEST FOR COVERAGE**  
**La Crosse Water Utility Auto Flush System**  
**Park Plaza Drive - La Crosse, WI**  
**October 2014**

**NOTE** – The following information is related to SECTION IV of the ELIGIBILITY CHECKLIST, Question #4, and is supplemental to the information shown on APPENDIX A – WATER TREATMENT ADDITIVE INFORMATION.

**NOTE 1** – Chlorine is used as a disinfectant at all thirteen, active wells in the City of La Crosse. Chlorine is mixed with water and fed as a 1 mg/l solution to the water entering the City's water distribution system. Based on the configuration of and chlorine demand in the distribution system, chlorine concentration in the water declines with time. The average chlorine residual throughout the water distribution system is approximately 0.4 mg/l; current results of chlorine residual tests taken as part of bacteriological sampling averaged 0.25/mg/l. Considering the discharge arrangement of the auto flush system in the storm system structure, followed by the flow of this water overland in an open ditch to the Pettibone lagoon, there should be no residual concentration of chlorine by the time this water enters the surface water.

**NOTE 2** – Polyphosphate is added as a sequestering agent at seven of the City's thirteen active wells. Dosage rates vary at each treated well. Operation of all City wells, treated and untreated, varies with the demand for water. Treated and untreated water is mixed/blended throughout the distribution system, including the City's 5 MG reservoir. APPENDIX A shows the calculated average dosage rate (1.34 mg/l) of Polyphosphate at the wells, and the approximate value of total phosphate levels (0.1 mg/l) in the distribution system.

CHLORINE

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**Johnson, Mark**

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**From:** Courtney.Willinger@Hydrite.com  
**Sent:** Friday, October 10, 2014 10:58 AM  
**To:** Johnson, Mark  
**Cc:** Anderson, Leland; 'tim.colgan@caruscorporation.com'  
**Subject:** Re: Information needed for submittal to DNR  
**Attachments:** CL0000.pdf

Good Morning Mark -- Below is the information requested.

Liquid Chlorine

48 Hr LC50 Daphnia magna: 0.017 mg/L

LC50 Fathead minnow: 0.07 to 0.15 (96 hour)

**Courtney Willinger**  
**Account Representative**  
8622 N. 87th St. | Milwaukee, WI | 53224  
Mobile: 608-792-8913  
[Courtney.Willinger@Hydrite.com](mailto:Courtney.Willinger@Hydrite.com)

[www.hydrite.com](http://www.hydrite.com)



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**From:** "Johnson, Mark" <[Johnsonm@cityofiacrosse.org](mailto:Johnsonm@cityofiacrosse.org)>  
**To:** "'tim.colgan@caruscorporation.com'" <[tim.colgan@caruscorporation.com](mailto:tim.colgan@caruscorporation.com)>, "[Courtney.Willinger@Hydrite.com](mailto:Courtney.Willinger@Hydrite.com)" <[Courtney.Willinger@Hydrite.com](mailto:Courtney.Willinger@Hydrite.com)>,  
**Cc:** "Anderson, Leland" <[andersonl@cityofiacrosse.org](mailto:andersonl@cityofiacrosse.org)>  
**Date:** 10/08/2014 04:33 PM  
**Subject:** Information needed for submittal to DNR

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Good afternoon,



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# SAFETY DATA SHEET

## CHLORINE

Product ID: CL000000

Revised: 03-27-2014

Replaces: 12-22-2009

### 1. IDENTIFICATION

Product Name: CHLORINE  
 Synonyms: Liquid Chlorine  
 CAS Number: 7782-50-5  
 Recommended Use: No data available.  
 Restrictions on Use: No data available.

Hydrite Chemical Co.  
 300 N. Patrick Blvd.  
 Brookfield, WI 53008-0948  
 (262) 792-1450

**EMERGENCY RESPONSE NUMBERS:**  
 24 Hour Emergency #: (414) 277-1311  
 CHEMTREC Emergency #: (800) 424-9300

### 2. HAZARD(S) IDENTIFICATION



Signal Word: Danger

GHS Classification: Oxidizing Gas Category 1  
 Gases under pressure - Liquefied Gas  
 Skin Corrosion/Irritation Category 1A  
 Serious Eye Damage/Eye Irritation Category 1  
 Specific Target Organ Systemic Toxicity (STOT) - Repeated Exposure Category 1  
 Acute Toxicity - Inhalation Gas Category 2  
 Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

Hazard Statements: May cause or intensify fire; oxidiser.  
 Contains gas under pressure; may explode if heated.  
 Causes severe skin burns and eye damage.  
 Fatal if inhaled.  
 May cause respiratory irritation.  
 Causes damage to organs (lung) through prolonged or repeated exposure.

#### Precautionary Statements:

Prevention: Keep away from clothing or other combustible materials.  
 Keep reduction valves free from grease and oil.  
 Do not breathe dust, fume, gas, mist, vapours or spray.  
 Wash thoroughly after handling.  
 Do not eat, drink or smoke when using this product.  
 Use only outdoors or in a well-ventilated area.  
 Wear gloves, eye and face protection and protective clothing.  
 Wear respiratory protection.

Response: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse

**CHLORINE**  
**Product ID: CL000000**

skin with water.  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
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 or doctor/physician.  
Specific treatment is urgent (see First Aid on SDS or on this label).  
Wash contaminated clothing before reuse.  
In case of fire: Stop leak if safe to do so.

**Storage:** Store in a well-ventilated place. Keep container tightly closed.  
Store in a secure manner.  
Protect from sunlight. Store in a well-ventilated place.

**Disposal:** Dispose of in accordance with local, regional and international regulations.

**Hazards Not Otherwise Classified:** None known.

**Percentage of Components with Unknown Acute Toxicity:**

**Oral:** 100.0 %  
**Dermal:** 100.0 %

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Component</u>	<u>CAS Number</u>	<u>% by Wt.</u>
Chlorine	7782-50-5	98 - 100 %

**4. FIRST-AID MEASURES**

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. Remove contact lens if easy to do.

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Wash with soap and water. Do not attempt to remove frozen clothing from frostbitten areas.

**Inhalation:** Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY. Keep warm and quiet.

**Ingestion:** If swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Have person sip a glass of water if able to swallow.

**Note to Physicians:**

For liquid contact, treat the affected person for frostbite if necessary. Probable mucosal damage may contraindicate the use of gastric lavage. There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Development of pulmonary edema may be delayed 48-72 hours.

**Most Important Symptoms/Effects:**

**Eye Contact:** CORROSIVE-Causes severe irritation and burns. Causes: permanent eye damage. blurred vision. blindness. May cause: frostbite. Contact with compressed liquid or escaping gas can cause frostbite injury.

**Skin Contact:** CORROSIVE-Causes severe irritation and burns. Causes: permanent skin damage. Contact may cause: dermatitis (inflammation of the skin). frostbite. Contact with compressed liquid or escaping gas can cause frostbite injury.

**Skin Absorption:** May be harmful if absorbed through skin. May cause tissue and blood cell damage.

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## CHLORINE

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**Inhalation:** May be corrosive to the respiratory tract. Severe irritation and burns may result. Poison. May be fatal if inhaled. May irritate or burn: nose, throat, respiratory tract. May cause: coughing, shortness of breath, difficulty breathing, chest pain, nausea, vomiting, central nervous system depression, dizziness, pulmonary edema, chemical pneumonitis, permanent damage, unconsciousness, death. Effects may be delayed.

**Ingestion:** This product is a gas at room temperature. Swallowing this material is unlikely. Liquid causes burns of the digestive tract. May cause: pain, thirst, abdominal cramps, difficulty in breathing, nausea, vomiting. Direct contact with the liquefied gas can cause frostbite.

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Use agent suitable for surrounding fire. DO NOT USE: Direct water stream.

**Fire Fighting Methods:** Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-Approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers, but avoid getting water into containers. Stop flow of gas before extinguishing fire. Move containers from fire area if possible without hazard. Do not apply water to leaking containers. Use water spray to keep fire-exposed containers cool and to protect persons effecting shut-off. Water used for fire extinguishing, which has been in contact with the product, may be corrosive. Water spray on active leak may promote accelerated corrosion of container and accelerate rate of leakage. Fire fighters should wear a one piece, total-encapsulating suit of Butyl coated nylon or equivalent. Run-off from fire control may cause pollution.

**Fire and Explosion Hazards:** STRONG OXIDIZER. Capable of supporting combustion of certain substances. Reacts explosively, or forms explosive compounds, with many chemicals such as acetylene, turpentine, ether, ammonia gas, hydrogen, and finely divided metals. May ignite organic and other easily oxidizable materials. This product may react with certain metals to produce flammable Hydrogen Gas. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

**Hazardous Combustion Products:** Toxic vapors.

### 6. ACCIDENTAL RELEASE MEASURES

**Spill Clean-Up Procedures:** CORROSIVE MATERIAL. STRONG OXIDIZER. Eliminate all sources of ignition. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Keep upwind of leak or spill. Do not touch or walk through spilled material. Shut off source of leak if safe to do so. Do not apply water directly to a leak. Reacts with water to form corrosive, acidic solution (hydrochloric acid). Clean-up personnel must be equipped with self-contained breathing apparatus and butyl rubber protective clothing. Prevent entry into basements, low areas, or confined areas. If a container is leaking, try to position it so that the gas rather than the liquid leaks. Apply emergency kit device if possible. For other than minor leaks, immediately implement predetermined emergency plan. Report spills to appropriate government authorities. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

### 7. HANDLING AND STORAGE

**Handling:** Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. CORROSIVE MATERIAL. Personnel near or handling Chlorine, should AT ALL TIMES carry a NIOSH/MSHA-approved chemical cartridge type escape respirator and be trained in its use. Follow safety procedures for containers of compressed gases.

**Storage:** CORROSIVE MATERIAL. STRONG OXIDIZER. Store in a cool, well ventilated area away from all sources of ignition and out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Store below 125 F. Store and handle in accordance with all current regulations and standards. Chlorine piping and equipment must be thoroughly cleaned of organics and moisture before use. Liquid Chlorine lines must have

**CHLORINE****Product ID: CL000000**

suitable expansion chambers between block valves due to the high coefficient of expansion. Always handle Chlorine with full regard to its pressure characteristics. KEEP AWAY FROM HEAT AND MOISTURE. NEVER place a leaking container in water nor spray a leaking container with water. Correct leaks immediately. Protect container from weather and physical damage. Water contamination should be avoided. See Section 10 for incompatible materials.

<b>8. EXPOSURE CONTROLS/PERSONAL PROTECTION</b>
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**OSHA Exposure Guidelines:**

<u>Component</u>	<u>Limits</u>
Chlorine	1 ppm Ceiling; 3 mg/m <sup>3</sup> Ceiling

**ACGIH Exposure Guidelines:**

<u>Component</u>	<u>Limits</u>
Chlorine	1 ppm STEL; 0.5 ppm TWA

**Note:**

\* IDLH = 10 ppm. Odor threshold approximately 0.3 ppm - highly variable especially with individuals routinely exposed.

**Engineering Controls:** General room ventilation and local exhaust are required. Process enclosures or other engineering controls may be needed to maintain airborne levels below recommended exposure limits. Maintain adequate ventilation. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly. NOTE: Chlorine is heavier than air and tends to collect at ground or floor level. Provide ventilation for low-lying areas.

**Eye/Face Protection:** Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.

**Skin Protection:** Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Butyl rubber. Neoprene. Chemical-resistant.

**Respiratory Protection:** Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH approved full facepiece chlorine type respirator. NIOSH-Approved full-facepiece positive-pressure, air-supplied respirator. NIOSH-Approved self-contained breathing apparatus with full facepiece is required for vapor concentrations above 10 ppm and for leaks and/or emergencies. Wear respirator while operating valves and connecting and disconnecting lines. Personnel handling or near Chlorine should at all times carry a NIOSH/MSHA-approved, chemical cartridge type, escape respiratory and be trained in its use. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

**Other Protective Equipment:** Eye-wash station. Safety shower. Rubber boots. Rubber apron. Protective clothing. Fully encapsulated suit for areas of high concentrations.

**General Hygiene Conditions:** Wash with soap and water before meal times and at the end of each work shift.

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>
--

**Physical State:** Liquid. Gas.

**Color:** Amber. Greenish-yellow.

**Odor:** Pungent irritating odor.

**Odor Threshold:** N.D.

**pH:** N.D.

**Freezing Point (deg. F):** -149.8

**Melting Point (deg. F):** -149.8

**Initial Boiling Point or Boiling Range:** ~ -29 °F

**Flash Point:** N.A.

**Flash Point Method:** N.A.

**Evaporation Rate (nBuAc = 1):** N.D.

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**Flammability (solid, gas):** N.D.  
**Lower Explosion Limit:** N.A.  
**Upper Explosion Limit:** N.A.  
**Vapor Pressure (mm Hg):** 4788 @ 20 C  
**Vapor Density (air=1):** ~ 2.5 @ 0 C  
**Specific Gravity or Relative Density:** ~ 1.47 @ 0 C  
**Solubility in Water:** 0.73 g/100g H2O @ 20C  
**Partition Coefficient (n-octanol/water):** N.D.  
**Autoignition Temperature:** N.A.  
**Decomposition Temperature:** N.D.  
**Viscosity:** N.D.  
**% Volatile (wt%):** 100  
**VOC (wt%):** 0  
**VOC (lbs/gal):** 0  
**Fire Point:** N.D.

**10. STABILITY AND REACTIVITY**

**Reactivity:** Contact with combustible material may cause fire.

**Chemical Stability:** Stable under normal conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur under normal conditions.

**Conditions to Avoid:** Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Avoid temperatures above 125 Deg. F. Avoid all forms of contamination. Intense local heat above 215C on steel container walls can cause steel to ignite chlorine.

**Incompatible Materials:** Alkalies. Reducing agents. Organic materials. Ammonia. Metal hydrides. Carbides. Phosphides. Sulfides. Readily-oxidized materials. Acetylene. Turpentine. Combustible materials. Metallic powders. Sulfur. Aluminum. Elemental metals. Nitrides. Amines. Oxides. Unstable and reactive compounds. Dry chlorine is highly reactive with titanium and tin. Reacts with most metals at high temperatures. Reacts with water to produce hydrochloric and hydrochlorous acids, which are corrosive to most metals. Combines with carbon monoxide and sulfur dioxide forming phosgene and sulfuryl chloride respectively. Moist chlorine is highly corrosive to most metals. Chlorine reaction to some organic compounds can be explosive.

**Hazardous Decomposition Products:** Hydrogen chloride. Hypochlorous acid.

**11. TOXICOLOGICAL INFORMATION**

<u>Component</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Inhalation LC50</u>
Chlorine	No Data	No Data	1H Rat: 293.0 ppm

**Routes of Exposure:** Absorption. Eyes. Ingestion. Inhalation. Skin.

**Eye Contact:** CORROSIVE-Causes severe irritation and burns. Causes: permanent eye damage. blurred vision. blindness. May cause: frostbite. Contact with compressed liquid or escaping gas can cause frostbite injury.

**Skin Contact:** CORROSIVE-Causes severe irritation and burns. Causes: permanent skin damage. Contact may cause: dermatitis (inflammation of the skin). frostbite. Contact with compressed liquid or escaping gas can cause frostbite injury.

**Skin Absorption:** May be harmful if absorbed through skin. May cause tissue and blood cell damage.

**Inhalation:** May be corrosive to the respiratory tract. Severe irritation and burns may result. Poison. May be fatal if inhaled. May irritate or burn: nose. throat. respiratory tract. May cause: coughing. shortness of breath. difficulty breathing. chest pain. nausea. vomiting. central nervous system depression. dizziness. pulmonary edema. chemical pneumonitis. permanent damage. unconsciousness. death. Effects may be delayed.

**Ingestion:** This product is a gas at room temperature. Swallowing this material is unlikely. Liquid causes burns of the digestive tract. May cause: pain. thirst. abdominal cramps. difficulty in breathing. nausea. vomiting. Direct contact with the liquefied gas can cause frostbite.

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## CHLORINE

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**Medical Conditions Aggravated by Exposure to Product:** Respiratory system disorders. Asthma. Skin disorders. Bronchitis. Emphysema.

**Other:** Repeated exposures can result in loss of ability to detect the odor of chlorine. Long term exposures may cause damage to teeth and inflammation or ulceration of the nasal passages. Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath, and reactive airway dysfunction syndrome.

**Cancer Information:**

This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

**Acute toxicity:** This material is corrosive to the skin, eyes, and respiratory tract. Breathing this material is harmful and can cause death. Harmful effects include burns and permanent damage to airways, including nose, throat, and lungs. The extent of injury following chlorine exposure depends on concentration and duration of exposure as well as water content of the tissue involved. Estimated effects are as follows: 0.2-0.4 ppm: Odor detection (some tolerance develops); 1-3 ppm: Mild mucous membrane irritation (can be tolerated ~ 1 hour); 5-15 ppm: Moderate irritation of upper respiratory tract; 30 ppm: Immediate chest pain, vomiting, dyspnea, cough; 40-60 ppm: Toxic pneumonitis and pulmonary edema; 430 ppm: Lethal over 30 minutes; 1000 ppm: Fatal within a few minutes.

Its action in the respiratory tract is due to its strong oxidizing capability; it forms both hypochlorous acid and hypochloric acid on contact with moist mucous membranes. Symptoms of pulmonary congestion and edema may develop after a latency period of several hours following severe acute exposure of chlorine.

**Chronic toxicity:** Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath, and reactive airway dysfunction syndrome.

**Additional data:** Odor does not provide an adequate warning of exposure. In workers exposed to chlorine for a 2 to 5 year period, all had some degree of olfactory impairment. Sensory irritation tolerance developed in rats when they were pretreated with 1 ppm chlorine.

**Mutagenic data:** This material has tested positive in one or more in vitro mutagenicity studies.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Information:** Highly toxic to fish and aquatic organisms.

LC50 Fathead minnow: 0.07 to 0.15 (96 hour)

LC50 Bluegill: 0.44 mg/l (96 hour)

LC50 Daphnia: 30 to 150 ug/L (48 hour)

**Chemical Fate Information:** Chlorine is a strong oxidizer and will react rapidly with oxidizable inorganic compounds. Chlorine will also oxidize organic compounds, but at a slower rate than inorganic compounds. The presence of light accelerates the dissipation of chlorine in water.

**Biodegradation:** This material is an element and not subject to biodegradation.

**Persistence:** The atmospheric half-life and lifetime of this material due to photolysis is estimated at 10 and 14 minutes, respectively. The half-life of free residual material in fresh water has been estimated at 1.3 to 5 hours.

**Bioconcentration:** This material is not expected to bioconcentrate in organisms.

**Additional Ecological Information:** This material has exhibited toxicity to terrestrial organisms.

## 13. DISPOSAL CONSIDERATIONS

**Hazardous Waste Number:** D003; D001

**Disposal Method:** Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. Absorb in alkaline solution such as Caustic Soda, Soda Ash or Hydrated Lime. Care must be taken during neutralization process due to high heat generation. Place neutralized material in a closed container. For guidance in disposal of material, contact your regional office of the Environmental Protection Agency (EPA).

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**CHLORINE**

Product ID: CL000000

Do not Discard to water or sewer. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

**14. TRANSPORT INFORMATION**

**DOT (Department of Transportation):**

Identification Number: UN1017  
Proper Shipping Name: Chlorine  
Hazard Class: 2.3 (5.1, 8)  
Packing Group: N.A.  
Additional Description: Poison-Inhalation Hazard, Hazard Zone B.  
Marine Pollutant: Chlorine  
Label Required: POISON GAS; OXIDIZER; CORROSIVE  
Reportable Quantity (RQ): 10# (Chlorine).

**15. REGULATORY INFORMATION**

TSCA Inventory Status: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

**SARA Title III Section 311/312 Category Hazards:**

	<u>Immediate (Acute)</u>	<u>Delayed (Chronic)</u>	<u>Fire Hazard</u>	<u>Pressure Release</u>		<u>Reactive</u>		
	Yes	No	Yes	Yes	Yes	No	No	
<b>Regulated Components:</b>								
<u>Component</u>			<u>CAS</u> <u>Number</u>	<u>CERCLA</u> <u>RQ</u>	<u>SARA</u> <u>EHS</u>	<u>SARA</u> <u>313</u>	<u>U.S.</u> <u>HAP</u>	<u>WI</u> <u>HAP</u>
Chlorine			7782-50-5	Yes	Yes	Yes	Yes	<u>Prop</u> <u>65</u>
								No

**\*Prop 65 - May Contain the Following Trace Components:**

This product may contain a detectable level of chemicals listed by California's Proposition 65.

**16. OTHER INFORMATION**

**Hazard Rating System**

Health: 3  
Flammability: 0  
Reactivity: 0

\* = Chronic Health Hazard

**NFPA Rating System**

Health: 4  
Flammability: 0  
Reactivity: 0

Special Hazard: OX

**MSDS Abbreviations**

N.A. = Not Applicable  
N.D. = Not Determined  
HAP = Hazardous Air Pollutant  
VOC = Volatile Organic Compound  
C = Ceiling Limit  
N.E./Not Estab. = Not Established

MSDS Prepared by: NAO

Reason for Revision: New format. Changes made throughout the MSDS.

Revised: 03-27-2014

Replaces: 12-22-2009

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**CHLORINE**

**Product ID: CL000000**

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The data in this Material Safety Data Sheet relates to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which HYDRITE CHEMICAL CO. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.



POLYPHOSPHATE

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**Johnson, Mark**

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**From:** Colgan, Tim <Tim.Colgan@caruscorporation.com>  
**Sent:** Thursday, October 09, 2014 12:15 PM  
**To:** Johnson, Mark  
**Cc:** Ihli, Sam  
**Subject:** RE: Information needed for submittal to DNR  
**Attachments:** Aquadene® SK-7699-SDS.pdf; AM Toxicity.pdf

Mark,

The commercial name of polyphosphate we supply is AQUADENE SK-7699. I have attached our current SDS. Section 12 has aquatic toxicity information for the Western Mosquito Fish (LC 50 is 1,380 mg/L, 96-hour). Aquatic toxicity requiring more than 1,000 mg/L places AQUADENE SK-7699 in the barley toxic to non-toxic category (see the attached AM Polyphosphate Toxicity information sheet).

Best Regards,

Tim

Tim Colgan | Regional Sales Manager  
Mobile: +1 815 228-3777 | [tim.colgan@caruscorporation.com](mailto:tim.colgan@caruscorporation.com)

Carus Corporation  
Office: +1 800 435-6856 | +1 815 223-1500 | Fax: +1 815 224-6697  
315 Fifth St | Peru, Illinois, USA 61354  
<http://www.caruscorporation.com>



CARUS CORPORATION  
WATER • REMEDIATION • INDUSTRIAL • AIR



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**From:** Johnson, Mark [<mailto:Johnsonm@cityoflacrosse.org>]  
**Sent:** Wednesday, October 08, 2014 4:33 PM  
**To:** Colgan, Tim; [Courtney.Willinger@Hydrite.com](mailto:Courtney.Willinger@Hydrite.com)  
**Cc:** Anderson, Leland  
**Subject:** Information needed for submittal to DNR

Good afternoon,

I am in the process of completing an application to DNR for a general permit needed for a surface water discharge from an automatic flushing system installed on a long, dead-end watermain in the La Crosse system. Submittal of the application requires product information that I need from both of you as our suppliers of polyphosphate (Carus) and chlorine (Hydrite), as follows:

- Commercial name of the product you supply;





# SAFETY DATA SHEET

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## 1. Identification

**Product identifier** Aquadene® SK-7699

**Other means of identification**  
**SDS number** -

**Recommended use** Aquadene® SK-7699 is an effective corrosion inhibitor and sequesterant for use in potable and industrial water systems.

**Recommended restrictions** None known.

**Manufacturer / Importer / Supplier / Distributor information**

**Company name** CARUS CORPORATION  
**Address** 315 Fifth Street,  
Peru, IL 61354, USA  
**Telephone** 815 223-1500 - All other non-emergency inquiries about the product should be directed to the company  
**E-mail** salesmkt@caruscorporation.com  
**Website** www.caruscorporation.com  
**Contact person** Dr. Chithambarathanu Pillai  
**Emergency Telephone** For Hazardous Materials [or Dangerous Goods] Incidents ONLY (spill, leak, fire, exposure or accident), call CHEMTREC at CHEMTREC®, USA: 001 (800) 424-9300  
CHEMTREC®, Mexico (Toll-Free - must be dialed from within country): 01-800-681-9531  
CHEMTREC®, Other countries: 001 (703) 527-3887

## 2. Hazard(s) identification

**Physical hazards** Not classified.

**Health hazards** Serious eye damage/eye irritation Category 2

**Environmental hazards** Not classified.

**OSHA defined hazards** Not classified.

### Label elements



**Signal word** Warning

**Hazard statement** Causes serious eye irritation.

**Precautionary statement**

**Prevention** Wash thoroughly after handling. Wear eye/face protection.

**Response** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**Storage** Store away from incompatible materials.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Hazard(s) not otherwise classified (HNOC)** Not classified.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
Diphosphoric acid, tetrapotassium salt	7320-34-5	10 - 20
Diphosphoric acid, disodium salt	7758-16-9	5 - 10
Tetrasodium pyrophosphate	7722-88-5	5 - 10

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Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact Rinse with water. Get medical attention if irritation develops and persists.
Ingestion Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed Exposed individuals may experience eye tearing, redness, and discomfort.
Indication of immediate medical attention and special treatment needed Treat symptomatically.
General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
Fire-fighting equipment/instructions Move containers from fire area if you can do so without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.
Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Never return spills in original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling Avoid inhalation and contact with skin and eyes. Wear appropriate personal protective equipment (See Section 8). Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits
US. NIOSH: Pocket Guide to Chemical Hazards

Table with 3 columns: Components, Type, Value. Row: Tetrasodium pyrophosphate (CAS 7722-88-5), TWA, 5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls General ventilation normally adequate.
Individual protection measures, such as personal protective equipment
Eye/face protection If contact is likely, safety glasses with side shields are recommended.
Skin protection
Hand protection For prolonged or repeated skin contact use suitable protective gloves.
Other Wear suitable protective clothing.

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<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

### 9. Physical and chemical properties

<b>Appearance</b>	Colorless solution.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	None.
<b>Odor threshold</b>	Not available.
<b>pH</b>	1% solution = 6.5±1.0
<b>Melting point/freezing point</b>	< 32 °F (< 0 °C)
<b>Initial boiling point and boiling range</b>	213.8 °F (101 °C)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	1.32±0.03 at 25°C
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Completely soluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

### 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization will not occur.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong acids. Strong bases.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

### 11. Toxicological information

#### Information on likely routes of exposure

<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Inhalation</b>	In high concentrations, vapors may be irritating to the respiratory system.
<b>Skin contact</b>	Prolonged or repeated skin contact may cause irritation.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Exposed individuals may experience eye tearing, redness, and discomfort.

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**Information on toxicological effects**

**Acute toxicity** May cause discomfort if swallowed.

Components	Species	Test Results
Diphosphoric acid, tetrapotassium salt (CAS 7320-34-5)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 4640 mg/kg
Tetrasodium pyrophosphate (CAS 7722-88-5)		
<b>Acute</b>		
<i>Oral</i>		
LD50		4000 mg/kg
<b>Skin corrosion/irritation</b>	Prolonged contact may cause dryness of the skin.	
<b>Serious eye damage/eye irritation</b>	Direct contact with eyes may cause temporary irritation.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	No data available.	
<b>Skin sensitization</b>	Not a skin sensitizer.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
<b>Reproductive toxicity</b>	No data available.	
<b>Specific target organ toxicity - single exposure</b>	No data available.	
<b>Specific target organ toxicity - repeated exposure</b>	No data available.	
<b>Aspiration hazard</b>	Not classified.	

**12. Ecological information**

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Test Results
Tetrasodium pyrophosphate (CAS 7722-88-5)		
<b>Aquatic</b>		
Fish	LC50 Western mosquitofish ( <i>Gambusia affinis</i> )	1380 mg/l, 96 hours
<b>Persistence and degradability</b>	The product is not expected to be readily biodegradable.	
<b>Bioaccumulative potential</b>	No data available for this product.	
<b>Mobility in soil</b>	Not available.	
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	

**13. Disposal considerations**

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.

**14. Transport information**

<b>DOT</b>	Not regulated as dangerous goods.
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.

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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

**15. Regulatory information**

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)**  
Not regulated.

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

**US state regulations**

**US. Massachusetts RTK - Substance List**

Tetrasodium pyrophosphate (CAS 7722-88-5)

**US. New Jersey Worker and Community Right-to-Know Act**

Tetrasodium pyrophosphate (CAS 7722-88-5)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Tetrasodium pyrophosphate (CAS 7722-88-5)

**US. Rhode Island RTK**

Not regulated.

**US. California Proposition 65**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes

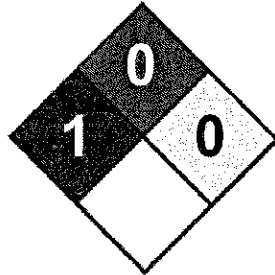
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Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).  
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

**Issue date** 27-March-2014  
**Revision date** -  
**Version #** 01  
**NFPA Ratings**



**References**

HSDB® - Hazardous Substances Data Bank

**Disclaimer**

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change and, therefore, holders and users should satisfy themselves that they are aware of all current data and regulations relevant to their particular use of product. CARUS CORPORATION DISCLAIMS ALL LIABILITY FOR RELIANCE ON THE COMPLETENESS OR ACCURACY OR THE INFORMATION INCLUDED HEREIN. CARUS CORPORATION MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR USE OR PURPOSE OF THE PRODUCT DESCRIBED HEREIN. All conditions relating to storage, handling, and use of the product are beyond the control of Carus Corporation, and shall be the sole responsibility of the holder or user of the product.

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