



EVERPURE® 7CLM CARTRIDGE

CHLORAMINES SOLVED



CHLORAMINES VS CHLORINE

THE PENTAIR® EVERPURE® 7CLM CARTRIDGE AND CLM SYSTEMS ARE THE IDEAL SOLUTIONS FOR THE INCREASING NUMBER OF FOODSERVICE LOCATIONS AFFECTED BY CHLORAMINES

Chloramines and how it differs from Chlorine

Like chlorine, chloramines is used by water municipalities to make water safe to drink by killing organisms, bacteria and viruses that cause waterborne illnesses. Both are highly efficient and low cost disinfectants, which are why nearly all municipalities in the U.S. use one or the other, or both.

Chloramines can be used as a primary disinfectant in lieu of chlorine, or as a secondary or “shock” treatment for situations that require additional disinfection.

Chloramines is created by adding a small amount of ammonia to chlorine, forming an inorganic compound (NH₂Cl.), the most common being monochloramines. Municipalities are adopting chloramines use over traditional chlorine for two reasons:

- It doesn't dissipate as readily as chlorine gas, so it provides disinfection to the far ends of the municipal pipe lines.
- Because of changes to the EPA's Safe Drinking Water Act.

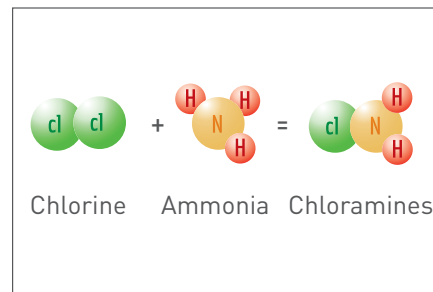
Chlorine reacts with naturally-occurring organics to create byproducts such as trihalomethanes (THM) and halo acetic acids (HAAS). There are concerns that these may be carcinogenic. As a result, the EPA added the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBP) which mandates that municipalities check THM and HAAS levels routinely to ensure it is less than 80 parts per million (ppm). Using chloramines is a cost-effective

means of adhering to these new guidelines, because chloramines is a compound in of itself and therefore will not bond with organic material to create potentially risky byproducts.

However, chloramines create problems for foodservice operations. Because of its ammonia component, chloramines isn't easily removed from water so it will remain present in your beverages even if you have conventional carbon filters. It also can be damaging to parts in brewing, steam and ice-making equipment.



CHLORAMINES



Chloramines is chlorine bonded with ammonia. This provides more stability for better disinfection over long distances in pipe lines. It lasts two or three days instead of just a few hours for free chlorine. Also, because it's less likely to create byproducts such as THMs, it helps municipalities meet new EPA guidelines for drinking water quality.

CHLORINE



Chlorine is used by municipalities to kill bacteria and viruses that cause illness. It can be removed with filters that have carbon. Chlorine has two disadvantages: it's a gas that can dissipate before it reaches consumers, and it easily bonds with organics to create undesirable byproducts such as THMs.



How does Chloramines impact my foodservice operation?

Chloramines have two primary effects:

- It can react with sweeteners to form compounds that can amplify chlorine odors and taste. The odor can bubble out with the CO₂ in fountain drinks.
- It can adversely affect the internal parts of foodservice equipment.

Chloramines help to make water safe, but are not friendly to hot and cold beverages:

- It can reduce carbonation and impart a negative taste and odor. To hide the smell and taste of chemicals, some operators increase the syrup ratio in their fountain beverages, reducing margins on drink sales.

- It can alter the aroma and taste of coffees and espressos by oxidizing the aromatics and oils, reducing the pH balance and causing drinks to be sour. Due to the fact that a person with sensitive taste can notice a pH shift of as little as 0.1, controlling your pH is vital to ensure consistent taste and quality.

Chloramines also can damage rubber and many synthetic gaskets and o-rings, causing them to become brittle or shrink, resulting in leaks of fluids and loss of pressure. In addition, chloramines, like chlorine, is corrosive to metals, especially copper. It can cause pitting and cracking even on stainless steel. These can result in equipment downtime, higher service costs and reduced equipment life, all costing you money.



Chloramines damage on a valve disc used in water treatment product.

New fountain beverage systems featuring microdosing technology

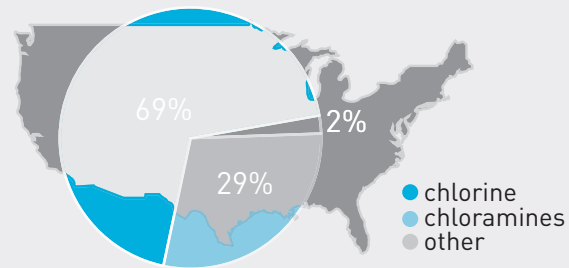
Most traditional fountain beverage systems use bag-in-the-box (BIB) syrup that is pumped to the dispenser using CO₂. At the dispensing valve, the syrup is mixed with carbonated water to create a fountain drink. Today, new systems are being introduced that use extremely concentrated syrups that are precisely microdosed into water and sweetener. Chloramines is damaging to gaskets, o-rings and rubber parts which is especially problematic for these systems due to their complex nature.

Where are chloramines used?

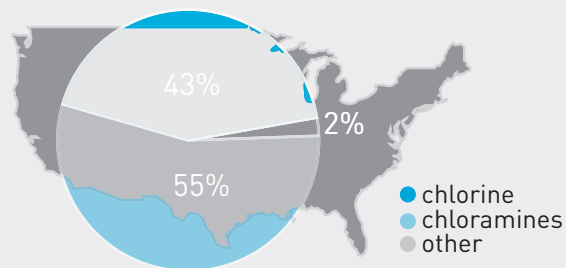
Chloramines are predominantly used in the U.S., but is also used in Canada, parts of Europe, Israel, Singapore and Australia. France, Germany and Austria have banned its use.

U.S. use of chloramines is increasing quickly.

Chloramines have been in use in parts of the U.S. for decades, but its use is expected to increase rapidly over the next few years because of the upcoming implementation of the EPA's stricter D/DBP2 standards. The EPA's Stage 2 Disinfection Byproduct Rules requires water systems to meet more stringent THM and HAA byproduct requirements by July 2014. This is expected to increase the use of chloramines over chlorine. Chloramines are considered to be a low-cost disinfection byproduct control strategy.



IN 2004, IT WAS ESTIMATED THAT 29% OF MUNICIPALITIES WERE USING CHLORAMINES AS THEIR PRIMARY DISINFECTANT.



IN 2012, 55% OF MUNICIPALITIES ARE EXPECTED TO BE USING CHLORAMINES, AND IT WILL CONTINUE TO INCREASE.*

Legal: *Estimated by American Water Works Association (AWWA)

PENTAIR® EVERPURE® CLM SYSTEM

HOW WILL THE CLM ENSURE I'M SERVING THE HIGHEST QUALITY BEVERAGES AND THAT MY EQUIPMENT IS PROTECTED?

The Everpure CLM System is an outstanding filtration and chloramines reduction system because:

Submicron filtration removes dirt and particles as small as 1/2 micron in size, and illness-causing cysts such as Cryptosporidium and Giardia.



The 7CLM Cartridge and Systems are NSF Certified for Standards 42 (Chloramines reduction, Taste & Odor, Nominal Particulate Class I) and 53 (Cyst reduction, Turbidity).

Quick-change filters eliminate the sanitization process required with drop-in cartridges and makes for ease of replacement.

Backed by Pentair Everpure, the most trusted brand in foodservice water filtration with over 75 years experience providing quality water treatment solutions worldwide.

The 7CLM Cartridge is compatible with Everpure quick-change filtration heads already in use around the world (QC7I, Coldrink, High Flow CSR, QL2, QL3B and QL3 heads). This means that moving from our chlorine cartridges to the CLM chloramines cartridge is quick and easy, with no tools or changes in plumbing required.

The 7CLM capacity ratings are balanced between particulate and chloramines removal. This is important because some filters only provide chloramines capacity, which does not provide a realistic capacity when particulate is present.

Premium quality carbon provides exceptional chloramines removal.

Three flow rates and capacities are NSF-listed and multiple system options are available to help ensure proper sizing to your water and application requirements.

WHY THE 7CLM?

How do I know if my local water utility is using chloramines?

Municipalities are not required to notify all of their customers if they're switching from chlorine to chloramines unless the residual chemical exceeds the maximum residual disinfection level (MRDL). However, notice will normally be sent to hospitals and other patient care facilities because of the risk to dialysis patients, where chloramines can cause hemolytic anemia. Some municipalities will also list chloramines in their annual Consumer Confidence Water Report. If you are unsure, you can call the number on your water utility bill and ask.

Your local municipal website should also have its Water Quality Confidence Report posted. If not, you can visit water.epa.gov/drink/local.

You can also have your water tested for chloramines. Pentair Everpure offers two options for detailed and precise lab analysis of your water:

1. DEV7013-73 STANDARD Foodservice Analysis: includes water bottle and lab analysis of 30 contaminants and characteristics.
2. DEV9800-15 STANDARD Foodservice & Organics Analysis: includes water bottle and lab analysis of 30 contaminants plus THMs, VOCs and bacteria.

There is a cost for this service. To order, please contact your local Pentair Everpure representative.



Another option is to test the water yourself using a SMARTWORKSSM Water Test Kit. This kit includes test strips and a TDS meter for testing 8 key water contaminants, including Total Chlorine and Free Chlorine. Total Chlorine is chlorine that has either bonded naturally with organics or other materials to form compounds, or intentionally bonded with ammonia to form chloramines. Free Chlorine is chlorine that has not bonded. If Total Chlorine is high and Free Chlorine is low, it indicates the presence of chloramines. These kits can be ordered at foodservice.pentair.com website, or through your local Everpure distributor.



My operation already has filtered water, so no worries, right?

If your filter contains carbon, it will remove chlorine. A high quality filter such as a Pentair[®] Everpure[®] Precoat Filter will remove up to 99% of chlorine, while some filters on the market might remove only 50%. How much chlorine is removed depends upon four factors:

1. The type of carbon (carbon block or Granular Activated Carbon, also known as GAC).
2. The quality of the carbon – the more craters in the carbon, the more surface area it has to remove chlorine and the material used. For example, carbon made from coconut shells is better at adsorbing chlorine than wood-based carbon.
3. The water's contact time with the carbon.
4. The quantity of carbon.

However, standard carbon filters have two limiting factors that render them less effective at removing this disinfectant:

- Not enough carbon: to remove chloramines, you need a lot of carbon, and the highest quality carbon.
- Not enough contact time with the carbon.

The problem is that the bonding of chlorine and ammonia makes for a stable and resilient disinfectant. Chloramines react weakly and slowly with activated carbon, which means that filters designed to remove only ordinary free chlorine will not be effective at removing chloramines.

MULTIPLE CLM SYSTEMS AVAILABLE FOR LOW VOLUME TO HIGH VOLUME OPERATIONS:

Specifications/Sizing

QC7I FOUNTAIN BEVERAGE SYSTEMS



PART NUMBER	EV9278-11	EV9278-12	EV9278-13	EV9278-14
Description	QC7I Single-7CLM	QC7I Twin-7CLM	QC7I Triple-7CLM	QC7I Quad-7CLM
Service Flow Rate GPM [LPM]	1.7 / 1.33 / 1.0 [6.43 / 5.03 / 3.78]	3.4 / 2.66 / 2.0 [12.87 / 10.06 / 7.57]	5.1 / 3.99 / 3.0 [19.30 / 15.10 / 11.35]	6.8 / 5.32 / 4.0 [25.74 / 20.14 / 15.14]
Rated Capacity Gallons [Liters]	3,600 / 5,500 / 8,000 [13,267 / 20,820 / 30,286]	7,00 / 11,000 / 16,000 [27,255 / 41,639 / 60,566]	10,800 / 16,500 / 24,000 [40,882 / 62,459 / 90,850]	14,400 / 22,000 / 32,000 [54,509 / 83,279 / 121,133]
Dimensions Inches [cm]	24.06" H x 8.04" W [61.1 H x 20.4 W]	25.59" H x 16.60" W [65.0 H x 42.2 W]	25.59" H x 21.0" W [65.0 H x 53.3 W]	25.59" H x 24.60" W [65.0 H x 62.5 W]
NSF 42	Yes	Yes	Yes	Yes
NSF 53	Yes	Yes	Yes	Yes

COLDRINK FOUNTAIN BEVERAGE SYSTEMS



PART NUMBER	EV9327-11	EV9327-12	EV9327-13	EV9327-14
Description	Coldrink 1-7CLM System	Coldrink 2-7CLM System	Coldrink 3-7CLM System	Coldrink 4-7CLM System
Service Flow Rate GPM [LPM]	1.7 / 1.33 / 1.0 [6.43 / 5.03 / 3.78]	3.4 / 2.66 / 2.0 [12.87 / 10.06 / 7.57]	5.1 / 3.99 / 3.0 [19.30 / 15.10 / 11.35]	6.8 / 5.32 / 4.0 [25.74 / 20.14 / 15.14]
Rated Capacity Gallons [Liters]	3,600 / 5,500 / 8,000 [13,267 / 20,820 / 30,286]	7,00 / 11,000 / 16,000 [27,255 / 41,639 / 60,566]	10,800 / 16,500 / 24,000 [40,882 / 62,459 / 90,850]	10,800 / 16,500 / 24,000 [40,882 / 62,459 / 90,850]
Dimensions Inches [cm]	25.0" H x 14".0 W [63.5 H x 35.6 W]	25.59" H x 21.5" W [65.0 H x 54.6 W]	25.59" H x 25.75" W [65.0 H x 65.4 W]	25.59" H x 29.365" W [65.0 H x 74.6 W]
NSF 42	Yes	Yes	Yes	Yes
NSF 53	Yes	Yes	Yes	Yes

HIGH FLOW COMBINATION SYSTEMS



PART NUMBER	EV9329-52	EV9329-53	EV9329-54
Description	High Flow CSR Twin-7CLM	High Flow CSR Triple-7CLM	High Flow CSR Quad -7CLM
Service Flow Rate GPM [LPM]	3.4 / 2.66 / 2.0 [12.87 / 10.06 / 7.57]	5.1 / 3.99 / 3.0 [19.30 / 15.10 / 11.35]	6.8 / 5.32 / 4.0 [25.74 / 20.14 / 15.140]
Rated Capacity Gallons [Litres]	7,200 / 11,000 / 16,000 [27,255 / 41,639 / 16,000]	10,800 / 16,500 / 24,000 [40,882 / 62,459 / 90,850]	14,400 / 22,000 / 32,000 [54,509 / 83,279 / 121,133]
Dimensions Inches [cm]	25.59" H x 25.8" W [65.0 H x 65.5 W]	25.59" H x 30.0" W [65.0 H x 76.2 W]	25.59" H x 34.0" W [65.0 H x 86.4 W]
NSF 42	Yes	Yes	Yes
NSF 53	Yes	Yes	Yes

REPLACEMENT CARTRIDGE



PART NUMBER	EV9693-01
Description	7CLM Cartridge 1PK
Service Flow Rate GPM [LPM]	1.7 / 1.33 / 1.0 [6.43 / 5.03 / 3.78]
Rated Capacity Gallons [Litres]	3,600 / 5,500 / 8,000 [13,267 / 20,820 / 30,286]
Dimensions Inches [cm]	20.75" H x 3.25" W [52.7 H x 8.3 W]
NSF 42	Yes
NSF 53	Yes

SIZING GUIDE

FOUNTAIN BEVERAGE APPLICATION	CLM SYSTEM W/PREFILTER	CLM SYSTEM W/O PREFILTER
Coca-Cola® Freestyle™ Single Unit	Coldrink 2-7CLM System	QC71 7CLM Twin System
Coca-Cola Freestyle Two Units	Coldrink 3-7CLM System	QC71 7CLM Triple System
Coca-Cola Freestyle Three Units	Coldrink 4-7CLM System	QC71 7CLM Quad System
1 Carbonator (Ambient)	Coldrink 1-7CLM System	QC71 7CLM Single System
1 Carbonator (Cold)	Coldrink 1-7CLM System	QC71 7CLM Twin System
2 Carbonators (Ambient)	Coldrink 2-7CLM System	QC71 7CLM Twin System
2 Carbonators (Cold)	Coldrink 3-7CLM System	QC71 7CLM Triple System
3 Carbonators (Ambient)	Coldrink 3-7CLM System	QC71 7CLM Triple System
3 Carbonators (Cold)	Coldrink 4-7CLM System	QC71 7CLM Quad System
4 Carbonators (Ambient)	Coldrink 4-7CLM System	QC71 7CLM Quad System
4 Carbonators (Cold)	Consult Everpure	Consult Everpure



WATER QUALITY SYSTEMS

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