



Chloramine CONVERSION

City of San Bruno
Public Works Department
650 / 616-7068
<http://sanbrunowater.ca.gov>

Water customers in San Bruno are fortunate. We can take safe, clean water for granted. All water supplies contain contaminants from the environment, but the City of San Bruno and the San Francisco Public Utilities Commission (from which San Bruno buys about half our water) disinfect our water supplies in order to remove potentially harmful microbial contaminants from our water supply. Disinfection of drinking water was one of the most important public health advances of the 20th century, nearly eliminating outbreaks of waterborne diseases in the United States.

Constant scientific advances, however, have revealed that the method of disinfection currently employed in San Bruno also produces byproducts. To keep these byproducts at safe levels, this fall we will be changing our disinfection process to use chloramine.

WHAT IS CHLORAMINE?

Chloramine is a combination of chlorine and ammonia that is considered a better disinfectant. Many Bay Area communities are successfully using chloramine disinfection.

Chloraminated water is safe for people and animals to drink, and for all other general uses. However, as with chlorine, chloramine will need to be removed for fish and amphibian use, and for people or businesses requiring highly treated water. Precautions must still be taken to remove or neutralize chloramine in the kidney dialysis process, in the preparation of water for fish tanks and ponds, and in businesses using water in treatment processes and beverage manufacturing.

Chloramine cannot be removed from water by boiling, or by letting an open container of water stand. It can only be neutralized or removed with specific treatment methods.

This newsletter explains more about chloramine. You will also be receiving further information as the conversion draws closer. If you have other questions, please call the City's chloramine conversion hotline at 616-7068.

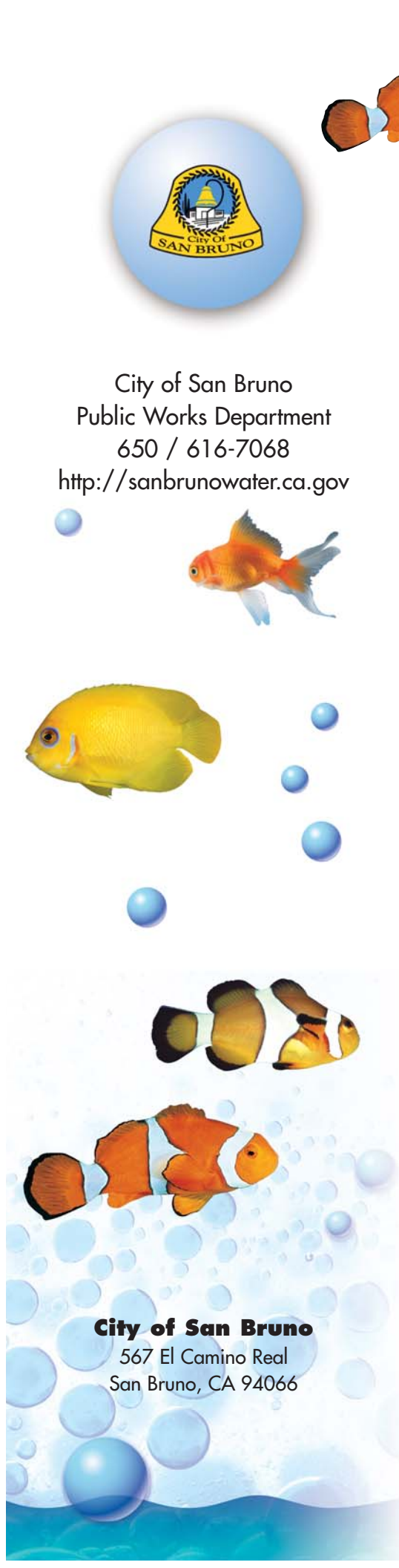
- Español 5**
- Tagalog 6**
- 中文 7**



City of San Bruno
567 El Camino Real
San Bruno, CA 94066

PRST STD
U.S. POSTAGE
PAID
SAN BRUNO, CA 94066
PERMIT # 84

Postal Customer



Fish, AMPHIBIANS & REPTILES

Chloraminated water passes through gills, directly entering the fish, amphibian and reptile bloodstream. Chloramine must be removed as it binds to iron in red blood cell hemoglobin, causing reduced cell capacity to carry oxygen. However, chloraminated water is safe for people and animals to drink as it is neutralized by the digestive process. It is also safe to cook with, bathe in, and for other general uses.

Just like chlorine, chloramine will need to be removed from water for fish, amphibian and reptile use. The following products, available at fish and pet supply stores, are recommended by aquarium or pond supply professionals:

- Treatment products (drops or tablets) that remove both ammonia and chlorine
- or -
- Biological filter (for ammonia) and chemical agent (for chlorine).

It has been reported that high quality activated carbon filtration and reverse osmosis remove chloramine under optimum conditions, but are expensive and must be closely monitored to ensure their effectiveness.

Chloramine cannot be removed by boiling water, adding salt, or letting water stand in an open container to dissipate the chloramine.

Chloramine is toxic to both fresh and salt water fish. Drinking water used with artificial sea salts for makeup water in salt water fish tanks must have the ammonia and chlorine removed first.

WATER TESTING METHODS

Aquarium owners will want to test their

water for ammonia concentrations in addition to chlorine. A test kit with the correct active agent for ammonia can be helpful for monitoring. Two basic kits are available, and should be selectively used:

- **Nessler reagent.** This kit will give a faster reading, but may give a false reading if ammonia binders have been used.
- **Salicylate reagent.** This kit provides an accurate reading when ammonia has been used.

HOW CHLORAMINE AFFECTS PONDS

Chloramine should ideally be removed from water before being added to a pond. The San Diego Koi Club suggests the following guidelines from their experience:

- If less than one percent of the total water volume of your system is replaced at any one time, the pond should absorb new chloraminated water with little to no impact on fish.
- If one to ten percent of pond water volume is replaced, sodium thiosulfate and a biological filter effectively remove chloramine.
- If more than ten percent pond water volume is replaced, an ammonia binder is needed.

Need more information? The following resources may be helpful to you...

www.sfaquarium.org

www.sfbakc.org

www.vcnet.com/koi_net/

www.koiclubsandiego.org

www.aquariacentral.com

Dialysis

PATIENTS & FACILITIES

Like chlorine, chloramine can harm kidney dialysis patients during the dialysis process if it is not removed from water before entering the bloodstream. It is safe for dialysis patients to drink, cook with and bathe in chloraminated water because the digestive process neutralizes chloramine before it enters the bloodstream.

The California Department of Health Services will inspect dialysis equipment and facilities to ensure providers successfully upgrade their dialysis equipment to remove chloramine before the conversion in Fall 2003. Dialysis units must be prepared for the anticipated chloramine concentration of 0.2 to 4 milligrams per liter. The maximum concentration allowed by law is 4 milligrams per liter.

Two methods are typically used to remove chloramine from water before dialysis:

- Ascorbic acid, or
- A granular-activated carbon filtration system specifically designed to remove chloramine.

Home dialysis patients should work with their home dialysis facility and physician to make necessary adjustments to their equipment.

Chloramine cannot be removed by boiling water, adding salt, or letting water stand in an open container to dissipate the chloramine.

For further information, contact your dialysis provider or:

Trans Pacific Renal Network
(415) 472-8590
www.network17.org

San Bruno Public Works has additional information about the chloramine disinfection change scheduled for Fall 2003.

Chloramine Information Line:
(650) 616-7068

Visit our website at:

<http://sanbrunowater.ca.gov>



Business AND INDUSTRY

Certain businesses using highly processed water may need to remove chloramine from water prior to use. Restaurants or seafood suppliers with fish tanks, beverage manufacturers, labs and high tech operations are examples of businesses that should review current operations and take steps to ensure their water is treated appropriately for use.

Chloramine may require your company to adjust or upgrade its current filtration and treatment system. A water treatment professional or your equipment supplier can answer questions about how chloramine will impact your current system, and recommend solutions to fit your business needs.

PREPARING FOR CHLORAMINE

The SFPUC recommends reviewing your current chlorine removal approach to assess any needed changes to remove chloramine for the Fall 2003 conversion. A 2 milligram per liter chloramine level with a chlorine to ammonia-nitrogen ratio of 5 to 1 is expected. A residual disinfectant range of 2 to 4 milligrams per liter is forecast. Changes in pH, temperature, or turbidity are not anticipated.

Companies requiring regulatory approval for their products should start early to obtain needed approvals.

Companies report adding additional activated carbon canisters to their filtration systems or increasing chemical dosage to remove chloramine. Monitoring your system before and after conversion will ensure the treated water meets your requirements.

Contact your equipment supplier or current water treatment professional.

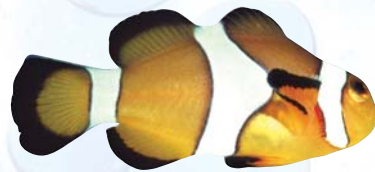
Chloramine cannot be removed by boiling water, adding salt or letting water stand in an open container to dissipate the chloramine.

San Bruno Public Works can answer questions about the chloramine disinfection change scheduled for Fall 2003.

Chloramine Information Line:
(650) 616-7068

Visit our website at:

<http://sanbrunowater.ca.gov>



Cloramina

El agua cloraminada es inofensiva para los humanos y los animales, así como para todos los usos generales. Sin embargo, igual que el cloro, la cloramina tendrá que ser eliminada del agua antes de usarla con peces y anfibios, y con personas o empresas que utilizan agua altamente tratada. Se tendrán que seguir tomando precauciones para retirar o neutralizar la cloramina en el proceso de diálisis del riñón, en la preparación de agua para acuarios y viveros, y en las empresas donde se utiliza el agua para procesos de tratamiento y en las fabricantes de bebidas.

A diferencia del cloro, la cloramina no se puede eliminar del agua a base de hervimiento, o dejando abierto un depósito de agua para disipar el gas que produce el cloro. Sólo se puede neutralizar o eliminar por medio de tratamientos específicos.

¿Cómo se mejorará el agua?

En otoño del 2003, La Comisión de Servicios Públicos de San Francisco (SFPUC) sustituirá el cloro por la cloramina en la desinfección del agua potable. La cloramina es una combinación de cloro y amoníaco que se considera un mejor desinfectante. Muchas comunidades del Area de la Bahía ya utilizan exitosamente la cloramina en la desinfección del agua. La SFPUC le brinda agua potable de alta calidad a más de 2.4 millones de clientes residenciales y comerciales en San Francisco, la Península, el Sur de la Bahía y el Este de la Bahía. Con la conversión a cloramina, nuestros clientes seguirán recibiendo agua de la más alta calidad, la cual cumple y sobrepasa los estándares reglamentarios, presentes y anticipados, más exigentes.

Consulte nuestro sitio web:
<http://sanbrunowater.ca.gov>

¿Por qué Cloramina?

La cloramina se considera un mejor desinfectante que el cloro por sí solo, ya que dura más tiempo en el agua, eliminando así patógenos como las bacterias y los virus. Comparado con el cloro, la cloramina produce niveles más bajos de trihalometanos, posibles carcinógenos que se forman cuando el cloro se mezcla con sustancias orgánicas en el agua. Algunos clientes de otros proveedores de agua potable reportan que el agua sabe y huele mejor cuando es tratada con cloramina.

La mayoría de los proveedores de agua potable en el Area de la Bahía y muchas otras comunidades alrededor del país ya han cambiado al uso de cloramina en la desinfección del agua potable.

¿Qué pasará con los peces y los anfibios?

El agua cloraminada puede dañar a peces y a anfibios, como tortugas y ranas, ya que la cloramina pasa a través de sus agallas y directamente al torrente sanguíneo. Para proteger a peces y anfibios, elimine la cloramina del agua con tratamientos económicos (gotas o tabletas) o con filtros de carbón especificados. Estos productos se encuentran generalmente en las tiendas de mascotas y de acuarios.

Los siguientes sitios web son fuentes de información sobre peces y anfibios:

www.sfaquarium.org

www.sfbakc.org

www.aquariacentral.com

¿Cómo afectará a los pacientes y proveedores de diálisis?

Igual que el cloro, la cloramina puede perjudicar a los pacientes de diálisis renal durante el proceso de diálisis si no se elimina del agua antes de que entre al torrente sanguíneo. El ingerir agua cloraminada no representa ningún riesgo para el paciente de diálisis, ya que el proceso digestivo neutraliza la cloramina antes de que ésta entre al torrente sanguíneo.

El Departamento de Servicios de Salud de California inspeccionará los establecimientos de diálisis y vigilará que los proveedores adopten las medidas necesarias para que actualicen su equipo de diálisis, y así eliminar la cloramina del agua, antes de que se efectúe la conversión a cloramina. Para más información, comuníquese con su proveedor de diálisis, o con el

Trans Pacific Renal Network: (415) 472-8590,
www.network17.org

¿Qué hay de las empresas que utilizan agua altamente procesada?

Las empresas industriales que utilizan agua altamente procesada - como laboratorios, fabricantes de microcircuitos, empresas de biotecnología, cervecerías, embotelladoras de refrescos, y laboratorios de fotografía - posiblemente tengan que tomar precauciones especiales para asegurarse que sus procesos de tratamiento de agua existentes eliminen la cloramina del agua antes de utilizarse. En la mayoría de los casos, sólo se requiere de un sencillo ajuste de procesos.

Para más informes, comuníquese con un especialista en tratamientos de agua o con su actual proveedor de equipo. Dichos asesores pueden revisar su proceso de tratamiento y hacer recomendaciones sobre cualquier actualización que pudiera ser necesaria.

ANO ANG CHLORAMINE?

Ang tubig na may chloramine ay maaring inumin ng tao at hayop, at ligtas ito para sa pangkahalatang gamit. Nguni't ang chloramine, tulad ng chlorine, ay kailangang alisin sa tubig na pinamamahayan ng isda o amphibians tulad ng palaka. Kailangan ding alisin ito sa tubig na gagamitin ng mga tao o negosyong nangangailangan ng tubig na di pangkaraniwan.

Kailangan ding maingat na alisin o ipawalang-bisa ang chloramine sa proseso ng kidney dialysis, sa paghahanda ng tangke o lawa ng isda, sa mga negosyong gumagamit ng tubig sa maseselang proseso o sa paggawa ng mga pamatid-uhaw na inumin. Ang chloramine, di tulad ng chlorine, ay hindi maaalis kung ang tubig ay pakukuluan lamang, o kaya'y hahayaan sa isang bukas na lalagyan upang malusaw ng hangin ang chlorine gas. Maaalis o mapapawalang-bisa lamang ang chloramine sa pamamagitan ng katangitanging pamamaraan.

Basahin ang laman ng polyetong ito upang malaman ito ... **GAWING MAS MAINAM PA ANG TUBIG NA MAINAM NA**

Paano mapapainam pa ang ating tubig?

Sa autumn ng 2003, sisimulang gamitin ng San Francisco Public Utilities Commission (SFPUC) ang chloramine-sa halip na chlorine-sa paglinis ng tubig na iniinom natin. Ang chloramine ay pinaghalong chlorine at amoniya. Ito'y tinuturing na mas mainam na panlinis at pangdisinpekta ng tubig. Maraming komunidad sa Bay Area ang matiwasay na gumagamit ng chloramine sa pagdisinpekta. Ang SFPUC ay namamahagi ng mataas na uring tubig na inumin sa higit sa 2.4 milyong mamamayan at komersyante sa San Francisco, sa Peninsula, South Bay at East Bay. Sa paglipat namin sa chloramine, maaring maging panatag ang mga mamamayan na sila'y tatanggap ng tubig na walang katulad sa kalinisan, tubig na sumusunod o lumalagpas pa sa kasalukuyang regulasyon at sa mga inaantabayanang regulasyon.

Bisitahin ang aming

website: <http://sanbrunowater.ca.gov>

Bakit chloramine?

Tinuturing na mas mainam na panlinis ang chloramine kaysa chlorine lamang, dahil ito'y nananatili sa tubig nang mas matagal upang kitilin ang mga pathogens tulad ng bacteria at viruses.

Kung itutumbas sa chlorine, ang chloramine ay nagbubunga ng mas mababang antas ng trihalomethanes-mga pinaghihinalaang carcinogens o sanhi ng kanser-na nagbubunga kapag ang chlorine ay pinaghalo sa mga natural na sustansya ng tubig. Ang mga suki ng ibang water utilities ang nagsasabi na ang tubig ay mas mainam ang lasa at amoy kapag chloramine ang ginamit na disinfectant.

6 Mas nakararaming Bay Area utilities at komunidad

sa buong bansa ang lumipat na sa chloramine sa pagdisinpekta ng tubig. Ito ang ilang lokal na utilities na gumagamit ng chloramine: Alameda County Water District, East Bay Municipal Utility District, Marin Municipal Water District, at Santa Clara Valley Water District.

Paano na ang mga isda at amphibians?

Maaring makasalanta sa isda at amphibians-tulad ng pagong at palaka-ang tubig na may chloramine kapag ang chloramine ay dumaan sa kanilang hasang at humalo sa dugo. Upang protektahan ang isda at amphibians, alisin ang chloramine sa pamamagitan ng mumurahang panlinis (likido o tabletas) o pangsala na karbon. Ang mga produktong ito ay madaling bilhin sa mga tindahan ng pet supplies o aquarium.

May impormasyon tungkol sa isda at amphibian ang mga sumusunod na website:

www.sfaquarium.org

www.sfbakc.org

www.aquariacentral.com

Paano na ang mga pasyenteng nasa dialysis at ang kanilang tagapangalaga?

Tulad ng chlorine, ang chloramine ay maaring makapinsala sa mga pasyenteng nasa dialysis (habang sila'y nasa proseso) kung hindi ito aalisin sa tubig na hahalo sa dugo. Walang panganib kung ang tubig na may chloramine ay iinum lamang ng pasyente, dahil ang proseso ng pagtunaw sa tiyan ay nagpapawalang-bisa sa chloramine bago ito humalo sa dugo.

Susuriin ng California Department of Health Services ang mga komersyal na dialysis facilities upang matiyak na ang mga ito ay nagpaigi na ng kanilang kagamitang pang-alis ng chloramine, bago mangyari ang pangkalahatang paglipat sa chloramine. Para sa iba pang impormasyon, tawagan ang inyong tagapagbigay ng dialysis o ang Trans Pacific Renal Network: (415) 472-8590, www.network17.org

Paano na ang mga negosyong gumagamit ng mataas na uring processed water?

Ang mga negosyong gumagamit ng processed water, tulad ng mga laboratoryo, microchip manufacturers, kompanyang biotech, gumagawa ng alak, nagbobotelya ng pamatid-uhaw, at photography labs ay maaring mangailangan din ng kakaibang hakbang upang makatiyak na ang kanilang water treatment process ay magtatanggal ng chloramine sa tubig bago nila gamitin.

Sa pangkaraniwan, ang kailangan lamang ay isang simpleng pagsasatama ng proseso. Para sa mas marami pang impormasyon, tumawag sa isang water treatment professional o sa inyong kasalukuyang supplier. Maari nilang sulitin ang inyong treatment process at maari silang magrekomenda ng kinakailangan pagbabago.

Kailangan pa ba ninyo ng impormasyon?

怎樣使我們的水質更好？

三藩市公用事業委員會將於2003年秋季起，改用氯胺作為食水的消毒劑。氯胺是氯與氨水的混合，被認為是較佳的消毒劑。很多灣區的社區均成功的使用氯胺做消毒劑。

三藩市公用事業委員會為三藩市、半島、南灣和東灣二百四十多萬的住宅和商業用戶，提供高質素的食水。在轉用氯胺後，我們的客戶將繼續取得最高品質的食水，符合或超越現時或未來規定的更嚴格標準。

詳情請瀏覽我們的網頁

什麼是氯胺？

含氯胺的水，可供人們及動物安全飲用，和供其他一般用途。但是，如供魚、水陸兩棲動物、或使用高度處理的水之商業用，則需要將氯胺清除。

在洗腎過程中、準備魚缸或魚塘的水、在處理過程中需用水的商業和汽水製造商，必須採取措施，先將氯胺清除或予以中和化。

與氯不同，不可以用煮沸方法、或將水放在無蓋的桶內讓氯氣消散，而氯胺清除。它只可以用特別的處理方法，將之中和化，或予以清除。

對使用高度處理食水的商業有什麼影響？

使用高度處理食水的商業，例如化驗室、集成電路製造商、生物科技公司、釀酒廠、汽水公司和沖印公司等，亦可能需要做特別的措施，確保他們現時的水處理程序，可以在用水之前，能將氯胺清除。在大部份情形下，做一個簡單的調整程序即可以。

查詢詳情請聯絡一名處理水質的專家，或你現時的設備供應商。這些顧問可以評審你的處理程序，就你可能需要做的升格程序，提出建議。

為什麼要用氯胺？

氯胺是被認為比只用氯更為有效的消毒劑，因為它可以在水裡維持較長，及並有效的清除像細菌和微菌的致病體。

與氯比較，氯胺產生較低的trihalomethanes，那是當氯與水的天然有機物混合時形成之可疑致癌質。其他使用氯胺做食水消毒劑地區的顧客說，他們覺得食水的味道和氣味比較佳。

大部份灣區公用事業區和全國很多地區都已轉用氯胺做食水的消毒劑。使用氯胺的本地供水區包括有：阿拉米達縣用水區、東灣用水區、馬連用水區和聖他克拉克用水區。

對魚和水陸兩棲動物有什麼影響？

含氯胺的水可傷害魚和水陸兩棲動物，例如龜、田雞等，因為氯胺通過牠們的腮直接進入牠們的血液。為保護魚和水陸兩棲動物，可使用便宜的水處理產品（滴液或片劑）和特別的碳濾器將氯胺清除。這些產品大部份都可在寵物店或水族館購買。

以下的網頁，提供有關魚和水陸兩棲動物的資料：

www.sfaquarium.org
www.sfbakc.org
www.aquariacentral.com



對洗腎的病人和服務者有什麼影響？

像氯一樣，氯胺在洗腎的過程中，如在進入病人的血液之前未予清除，可損害病人。洗腎病人飲含氯胺的水是安全的，因為清化的過程在氯胺進入血液之前，已予中和化。

加州衛生服務部將檢查商業的洗腎設施，確保洗腎者在將食水轉用氯胺之前，成功的將其洗腎設備升格，可將氯胺清除。查詢詳情請聯絡你的洗腎服務者或

Trans Pacific Renal Network :
(415) 472-8590，網頁：
www.network17.org

<http://sanbrunowater.ca.gov>

Frequently **ASKED QUESTIONS**

What is chloramine?

Chloramine is a disinfectant used in drinking water to remove bacteria and viruses. It consists of chlorine and ammonia.

Why are we converting from chlorine to chloramine?

For many reasons. Chloramine is a better choice as a final disinfectant than chlorine alone because chloramine produces lower levels of disinfectant by-products like trihalomethanes, suspected carcinogens that form when chlorine mixes with natural organic substances in water. The conversion will enable our agency to comply with more stringent regulatory standards (present and anticipated). Chloramine is more stable than chlorine and lasts longer in the distribution system. This provides increased protection from bacterial and viral contamination.

When will the conversion occur?

Fall 2003. The San Francisco Public Utilities Commission (SFPUC) and agencies that receive water from the SFPUC will switch their drinking water disinfection system in Fall 2003. A more specific date will be communicated in future notices to consumers.

How many utilities currently use chloraminated water?

Most Bay Area utilities and many communities nationwide have already switched to chloramine for drinking water disinfection. Local water providers include: Alameda County Water District, East Bay Municipal Utility District, Marin Municipal Water District, and Santa Clara Valley Water District. Some water providers throughout the United States have been using it for over 80 years.

Which customers will be affected by the conversion?

San Bruno residential and commercial customers and water agencies in San Francisco, San Mateo, Santa Clara, and Alameda counties that receive water from the SFPUC will be affected by the conversion.

Will the water taste different after the conversion to chloramine?

Possibly. Most consumers should not notice the change. In fact, many consumers from other utilities report chloramine improves the taste and odor of drinking water.

Is chloraminated water safe?

Chloraminated water is safe for people and animals to: drink, cook with, bathe in, water the garden, and for all other general uses. However, as with chlorine, precautions must be taken to remove or neutralize chloramine during the kidney dialysis process, in the preparation of water for fish tanks and ponds, and for businesses requiring highly processed water.

Is it safe to wash open wounds with chloraminated water?

Yes. Chloraminated water is completely safe to use on cuts and wounds.

How will chloramine affect household plumbing, pipes, and water heaters?

After the conversion, rubber parts on some household plumbing and water heaters may degrade faster than previously experienced. When replacing rubber plumbing parts, ask for chloramine-resistant parts, which are readily available.