Technical Paper #10

Shower Filters and Chloramine(s) Removal

The following brief information may shed some light on a confusing subject.

First, what is chloramine(s); it is compound of free chlorine (CL2) and ammonia (NH3). The new compound (NH2CL) is called chloramines(s).

How does it get into the water supply; It is injected by water treatment plants into the general water supply. Both free chlorine and ammonia are injected separately and by free association they will combine, sometimes completely and sometimes incompletely.

Why is it done; Water districts will generally say that it is done to extend the disinfection life of the chlorine. It is also done to reduce the potential of free chlorine combining with some organic matter thereby creating a possible health hazard called Trihalomethane (THM).

Does that increase the amount of free chlorine used in treating the water;

Yes, water districts can now use as much as 4.0 parts per million (ppm) of free chlorine, combined chlorine or chlorine dioxide. In practice we have not heard of more than about 3.0 to 3.25 ppm. But, that is a very significant increase in free chlorine. In the past water districts aimed at only about 0.5 ppm at the point furthest from the treatment plant.

The ratio between free chlorine and ammonia is 4 to 1. The chloramines(s) compound is 80% Free Chlorine and 20% ammonia. As a consequence you must remember that even with the use of ammonia you still have free chlorine in your shower water. Our filters will reduce that free chlorine.

Can a shower filter reduce chloramines(s); Not easily. The bond between chlorine and ammonia is relatively stable for at least 48 to 72 hours. Also the flow of water through the filter is too fast to break that bond. It is possible that a small amount of chloramines(s) is removed in a well engineered shower filter but the amount is so little that no claim should be made. To make such claim is unethical.

Chlorine/Chloramine(s) Testing Tips

From the shipment of our first shower filters in 1990 we have strongly cautioned against the use of the widely available swimming pool reagent called Orthotolodime or OTO in testing for free chlorine removal in any of our dechlorination products.

That warning is included in all products whether shower filters, bath filters, garden filters or hydroponic filters.

Why? OTO was designed for only one purpose. That was to measure the amount of total chlorine found in a swimming pool. Total chlorine is generally regarded as a combination of free chlorine and ammonia, better known as chloramines(s). However, there are other substances such as iodine or some metals which if found in the water will cancel OTO's ability to identify the free chlorine by itself.

Materials or devices that test for free chlorine can range from free chlorine test strips, to comparators (about $60 to $70) to digital color colorimeters (from $125.00 and up).

Below we have listed four recognized manufacturers of test systems. We encourage you to check them out.

Our last word of advice, please do not use OTO to check for Free Chlorine in any shower filter or any high flow dechlorination device whether made by us or someone else.

Hanna Instruments
www.hannainst.com
ph (877) 694-2662

Hach Company
www.hach.com
ph (800) 227-4224

LaMotte Company
www.lamotte.com
ph (800) 344-3100

Industrial Test Systems, Inc.
www.sensate.com
ph (800) 861-9712

Are there shower filters in the market that claim they can eliminate chloramine(s)?

Yes, there certainly are such filters. However, none have been tested by major testing bodies such as NSF International or the Water Quality Association in order to support a claim of chloramines(s) removal. If you should run across a filter making such a claim ask them to prove it. They won't be able to do so.

Email us if you have further questions.

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