

Operator Quiz Corner
An Overview of Materials and Operational Standards in Drinking Water

Dan Laprade, Training Coordinator
(dlaprade@masswaterworks.org 413-883-7030)

Here in the US much of what public water systems buy and install must comply with certain industry standards. The two most common standards that are encountered are those set forth by the National Sanitation Foundation (NSF) and the American Water Works Association (AWWA).

National Sanitation Foundation (<https://www.youtube.com/watch?v=bdwk5JY-r4Q>)

NSF is an independent 3rd party that tests and certifies a wide range of products to verify that they meet stringent standards and do not pose a health risk to the consumer. NSF tests products used in food processing, home appliances, pharmaceutical equipment, plumbing components and treatment chemicals. After the passage of the Safe Drinking Water Act in 1976 the US Environmental Protection Agency (EPA) commissioned NSF to develop standards 60 and 61.

- NSF60 is the standard that must be met for all chemicals used in drinking water. Corrosion control chemicals, coagulants, disinfection/oxidation chemicals, pH adjustment & sequestering chemicals are some common chemicals that must comply with NSF60. The certification is considered voided whenever the chemical is repackaged, diluted, blended or otherwise handled subsequent to shipment from the certified manufacturer's location. [Note: filter media such as GAC is covered in NSF53]
- NSF61 is the standard that must be met for any material that is in contact with drinking water, including coatings, adhesives, lubricants, gaskets, pipes, valves, fittings and meters. The NSF61 standard that has recently received the most attention is the change of term 'lead free' from the previous 8% down to 0.25 %.

American Water Works Association (<https://www.youtube.com/watch?v=oKdJejpyaDA&t=39s>)

There are over 180 AWWA standards that describe the minimum requirements for a wide range of activities performed by public water systems in the US. The standards range from proper procedures for installing and disinfecting water mains to the minimum requirements to ensure proper testing and delivery of a wide range of treatment chemicals. Newer standards address utility management and emergency preparedness. Each standard is developed by a committee of volunteer experts and will often be updated as new information become available. A complete list of AWWA standards can be found here: <https://www.awwa.org/Publications/Standards/Standards-List>

1. Which of the following would be the quickest way for a water operator to confirm that a chemical delivered to the treatment facility is okay to be used at the treatment plant?
 - a. **Verify the NSF60 label on the container**
 - b. Ask the delivery truck driver
 - c. Call the supplier
 - d. All of the above
2. True or false the USEPA tests and approves point of use household filters.
 - a. True
 - b. **False**
3. When considering various sealants to use on the concrete walls of a wet well for a distribution system booster pump station it is important to specify that the sealant material meets.....

- a. NSF60
 - b. NSF61
 - c. AWWA60
 - d. AWWA61
4. The proper method of testing and accepting sodium hydroxide at a water treatment plant is likely to be addressed by which of the following?
- a. NSF Standard 60
 - b. NSF Standard 61
 - c. AWWA standard B501-19
 - d. All of the above
 - e. None of the above
5. According to AWWA Standard C651-14, the tablet method of disinfecting a 12-inch water main with a chlorine dose of 25mg/L, requires 4 calcium hypochlorite tablets (5-gram tablets) for each 18 foot section of pipe. How many tablets would be needed to disinfect 504 feet of newly installed 12-inch water main with a chlorine dose of 50 mg/L?
- a. 100
 - b. 112
 - c. 224
 - d. 2016

Solution:

Number of 18-foot pipe sections to be disinfected = $504 \times (1 \text{ section}/18\text{ft}) = 28 \text{ sections}$

If 4 tablets/section are needed to achieve a 25 mg/L dose then 8 tablets/pipe section will be needed to achieve the desired dose of 50 mg/L

Number of 5 gram tablets needed = $8 \text{ tablets/section} \times 28 \text{ sections} = 224 \text{ tablets}$