For more information:
Dave Loveday, Director, Government Affairs, Communications
Water Quality Association
International Headquarters & Laboratory
4151 Naperville Road, Lisle, Illinois 60532-3696 USA
dloveday@wqa.org • 630 505 0160 • Fax: 630 505 9637

Drinking water treatment: Some clear facts and figures

WATER QUALITY ASSOCIATION FACT SHEET

- Filtering systems in the home provide the highest technologies available for treating drinking water. **Less than two percent of all water consumed is ingested by humans,** making these "point-of-use" systems the most comprehensive and cost-effective option for providing drinking water safely.
- Common groundwater contaminants include enteric microbes, lead, copper, radon, nitrate, pesticides, metals, and volatile organic compounds. Effective technologies are available in certified and economical products for correcting all these drinking water problems and others at the point-of-use (POU) and point-of-entry (POE) in the household.
- While utilities are required to meet safety standards set by the U.S. EPA, home filtering systems act as a **final contaminant barrier** and can further purify water for drinking.
- Though specific product performance standards have not been developed for all chemicals, many point-of-use technologies have proven effective for the **treatment of emerging contaminants**. Nano-filtration and reverse osmosis systems removed drugs tested by the Colorado School of Mines at full-scale facilities in Arizona and California. Activated carbon, distillation, ozonation, and advanced oxidization have likewise shown promise in removing many of these contaminants. Individual manufacturers can also test products for specific contaminant removal performances if they choose.
- According to Utah State University Extension, **90 percent of oral drugs can pass through humans unchanged**. These often then move through wastewater into streams and groundwater. It is generally cost prohibitive for utilities to use systems such as nano-filtration, long contact activated carbon, and reverse osmosis. However, these technologies have proven successful at economically removing many contaminants in home water treatment systems.
- Water quality experts and researchers are examining the occurrence of many different emerging contaminants, such as those found in personal care products and pesticides. These are often referred to as endocrine disrupting chemicals.
- WQA provides **Gold Seal certification** for products that remove a variety of contaminants. (Click the Gold Seal button on the home page of wqa.org.)
- Consumers can learn about different treatment systems and find locally certified dealers by visiting the WQA Web site's Gold Seal and **Find A Professional** features at wqa.org.
- More information is available at WQA's **Water Information Library** online, which includes a search feature.

Public opinion survey demonstrates public concern …

Fifty percent of Americans believe federal laws governing drinking water are not strict enough, according to a scientific opinion poll conducted for the Water Quality Association. The random sample surveys, conducted by Applied Research-West, Inc., were released by WQA in 2008.

Only 34 percent of respondents stated that they believed federal drinking water quality laws are "fair." Additionally, 38 percent said they do not believe their municipality is doing everything it should to make sure water reaching their home is safe to drink.

Overall, just over two-thirds of Americans - 67 percent - are generally concerned about the quality of their household water supply. Americans seem to increasingly believe that responsibility for safe drinking water is a public/private partnership. Seventy percent said they believe that home filtration plays a role, along with their municipality, in ensuring safe drinking water. (For more details, visit wqa.org/pdf/pressreleases/survey.pdf.)

Find more information with WQA Technical Application Bulletins ...

WQA provides detailed scientific analysis on the treatment of more than 15 specific contaminants, including aluminum, barium, copper, fluoride, lead, mercury and uranium. These bulletins, written and reviewed by experts in the field, offer contaminant descriptions, health effects and treatment options. Visit wqa.org/technicalbulletins. Some excerpts:

Arsenic. Current technology suggests that several techniques may be used for removing the arsenite, arsenate, and organic forms of arsenic from drinking water including iron based systems, activated alumina media filtration, manganese greensand filtration, anion exchange, distillation, and reverse osmosis.

Chloramines. To improve the taste and odor of drinking water, chloramines often must be removed. Because they are small, stable molecules with no net charge, they can be difficult to remove by distillation, reverse osmosis (RO) and ion exchange resins. The most effective nonchemical method for removing chloramines is activated carbon.

Lead. POU/POE products are considered to be the preferred method for lead removal, since most lead in drinking water is the result of corrosion in the water distribution and home plumbing system. These include RO, strong acid cation exchange (Na+ form), distillation, and solid block and precoat adsorption filters (i.e. properly designed submicron filtration with adsorption media).

Nitrate-Nitrite. Current technology suggests that several techniques may be used for removing nitrate from drinking water including chemical reduction, ion exchange, reverse osmosis, electrodialysis, and distillation. At the present time, it appears that three methods, ion exchange, distillation, and reverse osmosis, are considered to be practical and economically feasible for nitrate removal when considering POU or POE devices.

Radium. RO and distillation have proven to be effective at reducing radium. There are established protocols for reducing radium by cation exchange softeners, reverse osmosis systems, and distillers. Discharge regulations for wastewater containing radium may vary from area to area.

WQA is a non-profit association that provides public information about water treatment issues and also trains and certifies professionals to better serve consumers. WQA has more than 2,500 members nationwide. Please visit wqa.org for more information.