



Lead Free & Lead Safe Drinking Bubblers Available in Australia from Galvin Engineering

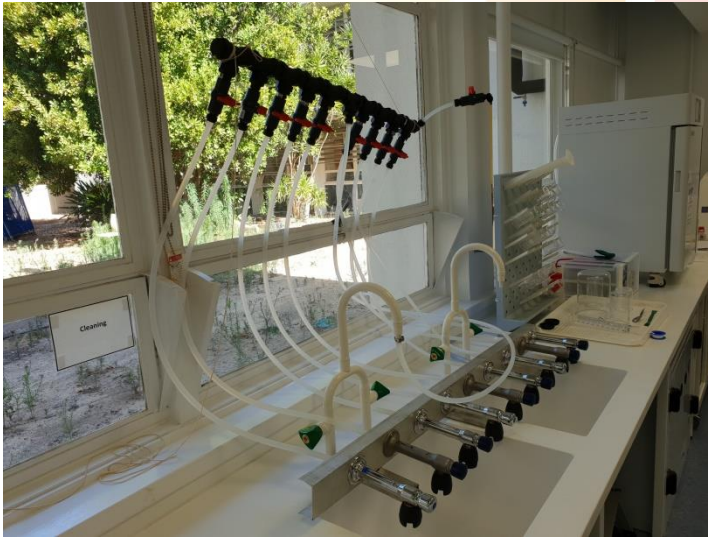
By Chris Galvin, Galvin Engineering (GE), Perth, Western Australia, June 2020

The World Health Organisation (WHO) states that lead is a cumulative toxicant that can result in adverse health effects. Lead is considered particularly harmful to young children and it is estimated to have contributed to 540,000 deaths worldwide in 2016. There is no known level of lead exposure that is considered safe.

Whilst there is no clear evidence of the harmful effects on human health from the consumption of metals in drinking water, the increased concern amongst the health community and the public surrounding the effect on drinking water from lead in plumbing materials, is leading to calls for regulations and standards to be changed to ensure lead ingestion is reduced or eliminated.

In Australia over the last few years, we have had several high-profile cases of lead contamination being found in our drinking water. For example, the opening of the \$1.2 billion Perth Children's Hospital (PCH) was delayed for 2 ½ years until March 2018, with one of the reasons cited for the delay being elevated lead levels in the water. The products deemed to be at fault at PCH were replaced with lead free alternatives. In 2018, Geelong Council in Victoria closed down the drinking fountains in several parks over concerns around high levels of lead being found in the water. This resulted in the Victorian School Building Authority (VSBA) changing its Building Quality Standards Handbook (May 2019) to only allow the use of lead-free or lead-safe tapware and piping systems in schools.

At Galvin Engineering (GE), our purpose is to provide Water Solutions for a Healthier Environment. With anxiety in the community around elevated lead levels in water increasing, we have responded to these concerns by designing and making premium quality taps in new lead free or low lead materials using special manufacturing techniques. This has resulted in the release of the innovative GalvinClear® Lead Safe™ product range.



In 2019, GE commissioned a study to sample and accurately measure what levels of lead may be leached from our drinking bubblers manufactured from these different materials. Professor Environmental Engineering Anas Ghadouani (BSc MSc PhD) and his faculty team at the University of Western Australia (UWA) was engaged to undertake comprehensive testing. Water samples were analysed at an independent NATA approved laboratory in Perth, ALS

Environmental.

Three GE drinking bubbler models were tested. The bubblers were manufactured in our ISO9001 and ISO14001 endorsed factory using strict quality control procedures in a controlled clean environment. After manufacture, each bubbler was washed in a special solution to remove any residual lead left inside the product.

One bubbler was manufactured using traditional high quality standard DZR brass containing less than 2.5% lead. Two bubblers were produced using our new GalvinClear® Lead Safe™ materials. The first was made from a premium grade lead-free 316 stainless steel. The second was produced using a special low lead DZR brass that



contains less than 0.2% lead content. This alloy is approved to the European's 4MS Common Approach and complies to the strict requirement of the USA's Safe Drinking Water Act.

The final results from four separate rounds of tests during 2019 were:



- All styles of GE bubblers are delivering water that is many times under the maximum allowable lead level of $<0.01\text{mg/L}$ as set in the Australian Drinking Water Guidelines (ADWG) and are therefore considered safe for drinking water.
- The water extracts from the GE bubblers manufactured from standard DZR brass showed very low lead levels in the water that were five times under the maximum limit set out in the ADWG.
- The water extracts taken from the GE bubblers manufactured from 316 stainless steel, showed no detectable levels of lead in the water
- The water extracts from the GE bubblers manufactured from low lead DZR brass, showed no detectable levels of lead in the water

Health experts agree that any form of lead ingestion should be reduced or eliminated. As this study confirms lead exposure in drinking water is preventable, and drinking water supplied via GalvinClear® Lead Safe™ bubblers contains no detectable levels of lead. Indeed, all of our drinking bubbler models significantly exceed the requirements set by the WHO and the ADWG.



Photo: Lead Safe drinking bubblers by Galvin Engineering, at Perth Optus Stadium.

GalvinClear® Lead Safe™ drinking bubblers are a safer and healthier choice for the community, especially for areas of greatest risk such as for schools and hospitals.