

Water supplies for Hydrogen Generation - January 17 2025

Obtaining pure water is a concern for any industry aiming to generate Hydrogen gas from the electrolysis of water. All domestic water supplies in Australia contain Fluoride and Chlorine. Chlorine can oxidize certain contaminants, improving water quality by reducing tastes and odors.

Chlorine and fluorine provide an alternative oxidation pathway that will lead to the corrosion of even stainless steel 316L in an electrolysis process.

For this reason tap water / scheme water cannot be used in the electrolysis process . Distilled water / rain water is required.

In isolated locations which use ground water for drinking, there is often high concentrations of Sodium, Magnesium , Iron, Calcium Salts that make the water “hard water” and unsuitable for use in electrolysis applications.

We have developed a water purification process using an ionic resin filter process to remove all cations and anions from the water that can be used for the Hydrogen generation electrolysis process. This process / system / Module can be used on scheme water and Ground water to produce high quality water for use in our systems, so that electrodes are never damaged. Testing of the ion concentration of scheme drinking water in Perth on January 17, showed a ion concentration of 780 ppm. When the same water supply was passed through the ionic resin filter (see photo) the ion concentration dropped to 50 ppm – this is the same concentration of my Rainwater used in my hydrogen generators.

Water purification can be a major issue for people travelling or living in isolated regions where ground water is available and the cost of distilled water is very very expensive. Our Water / ionic Resin purification systems use replaceable modules that can be either completely replaced or returned to me to be reloaded with a fresh resin membrane system.

The lifespan of a Resin Module is 4 to 6 months, and is easily replaced by undoing the screw on pipes attached to each end of the resin Module. A 12 volt water pump can be used / attached to the module to used for stream or ground water.

The unit produces pure water free of cations or anions pollution. It is not designed to produce drinking water free of any Microbes/ Bacteria etc.- in fact removes the chlorine or fluorine used to cleanse water for human consumption.

The module has a black plastic coating covering the resin module , to protect it from UV damage to the resin loaded membranes.. This coating should not he damaged or removed.

For more information on purchasing the new Ionic Resin water purification modules, Call Gavan 0403177183 or email gavan@hfuel.com.au.

