

Understanding Your Electrolyte

Use of Electrolyte

An electrolyte is defined as any substance containing free ions that make it electrically conductive. By adding an electrolyte to distilled water, we are allowing the water to conduct electricity.

Over the past years we have supported two major cell designs and electrolyte choices. Early on we used Potassium Carbonate (K₂CO₃) as an electrolyte for its non-toxic properties to keep new enthusiasts safe. The non-toxic properties made this electrolyte attractive and easy to ship. Unfortunately, the range of operating temperature was narrow, and running at higher temperatures for long periods would cause the electrolyte to turn the solution muddy and dark.

The decision was made to adopt the most popular electrolyte – potassium hydroxide (KOH) – for all our third generation designs. KOH is very conductive, runs clean, and has a very wide range of operating temperatures. **However, please understand KOH is considered toxic and deserves proper attention.**

Safety Information

If you get KOH in your mouth or eyes, or are splashed with the mixed solution, you must immediately flush the affected surfaces with water and get the proper attention.

We strongly encourage the proper handling, storage and use of KOH. Please keep it out of reach of children. Please be careful and wear protective gear such as gloves and eye protection.

We cannot stress this enough. Also, upon mixing, the solution will get hot and can even melt thin plastic bottles in high quantity. We are confident that proper handling of KOH will lead to many years of safe and effective savings.

Different Recipes for Your Solution

First determine whether you have the third generation cell or the earlier designs. If your cell was purchased after January 2011, you probably have the third generation design which is a seven plate unit and does NOT use jumper wires to interconnect the plates.

This recipe for this design uses about 25% to 35% KOH to the total amount of distilled water.

For newer cells this amount is 1 Cup to 2 Cups of KOH per quart (225 g to 500 g per liter). This amount of KOH offers a broad operating range and non-freezing properties.

The earlier cells used 'jumper' wires to connect the neutral plates together. This was a clever way to increase plate to plate voltage. Typically these cells also used eight stainless steel plates, and typical mixture for early cells can be 1/2 teaspoon per quart of distilled water.

Amperage Determines HHO Production

These 'recipes' are approximate values and are recommended as starting points and should be tested with your actual installation. The electrolyte concentration will determine the current draw (amperage) of the unit and the amount of HHO production, unless you have a PWM controller that will automatically set the amperage.

Your HHO output will also be different from a standing 12 volt battery versus the voltage of a running vehicle's charging system which typically produces from 13 volts to 14 volts.

Without a PWM controller, the system will start 'cold' (at ambient temperature) and slowly increase its production and current draw. If the amperage continues too high or is higher than the recommended level for the system you purchased, **you can drain, dilute and refill the system to lower the current.**

A PWM is an electronic controller that automatically adjusts for changes in operating temperature and other external factors. PWMs are generally part of our premiere system packages and and a nice upgrade to a basic system, but they are not required.

As with any of our products, if you have questions please contact: support@hydrogenmonkey.com