

Utilization of Oxygen Release

Water electrolysis represents a fundamental technology that has been used for many years in different industries. This phenomenon is the consequence of applying an electric current through anodes and cathodes that are inserted in electrolytes. This electric current breaks the hydrogen bond, between the oxygen and hydrogen, when providing the required energy.

In nowadays applications, only the hydrogen resulting from the electrolysis is used. The released oxygen is not being stocked, but blown out, resulting in a waste of energy from the over-ambient pressurized system. This is a real disadvantage especially when there is no grid connection associated with a system. At large scale, the industrial world can find a real benefit by creating energy store system that can stock the oxygen.

The stored or pressurized oxygen can be used by linking a small turbine with a generator at the anode, where the oxygen released it is blown out. In addition, a supplementary tank can be used

to increase the volume of available compressed oxygen.

This idea is very fruitful, especially for application that are using high pressure and no grid connections to them, for example offshore applications. It can allow to charge batteries or any other auxiliary supply, mainly when the system must be switched off, but keep other additional systems working. Furthermore, the stored oxygen can also be used as a self-fuel to prepare the system to start and maintain the heat of it when no power is supplied, mainly during the cold season.

Oxygen stored can be a promising vector for the energetic industries in the future, especially because the electrolysis of water serves as a renewable and sustainable chemical practice. By implementing this idea, the cost of buying expensive storage batteries should be significantly reduced and the system can be working without any other additional component to store energy.