

TECHBRIEF

Cutting Edge Material Science by CeramHyd

CERAPEM™ AT A GLANCE :

Type: Ion Exchange PEM

Material: Ceramic

Thickness: 300 micron

Sheet Size: 250cm x 100
cm

pH Range: 1-12

Non-sulfonated Membrane

Bipolar Membrane

Cell Voltage Range: 1.5-7v

Max operating temp 120°C

CERAMHYD STACKS :

“Zero Gap” between
membrane & electrode.

“2 Chamber” and “3
Chamber” cell designs.

Mini-stacks for small
disinfection applications.

Stacks for municipal
and industrial scale
applications.

Hydrogen “PowerStack
Modules™” up to 1MW.

Core Technology

CeramHyd S.A is the advanced Materials Science company that developed a proprietary membrane technology that breaks molecules in a controlled and deliberate way. This disruptive technology creates numerous opportunities in diverse multi-billion dollar market sectors.

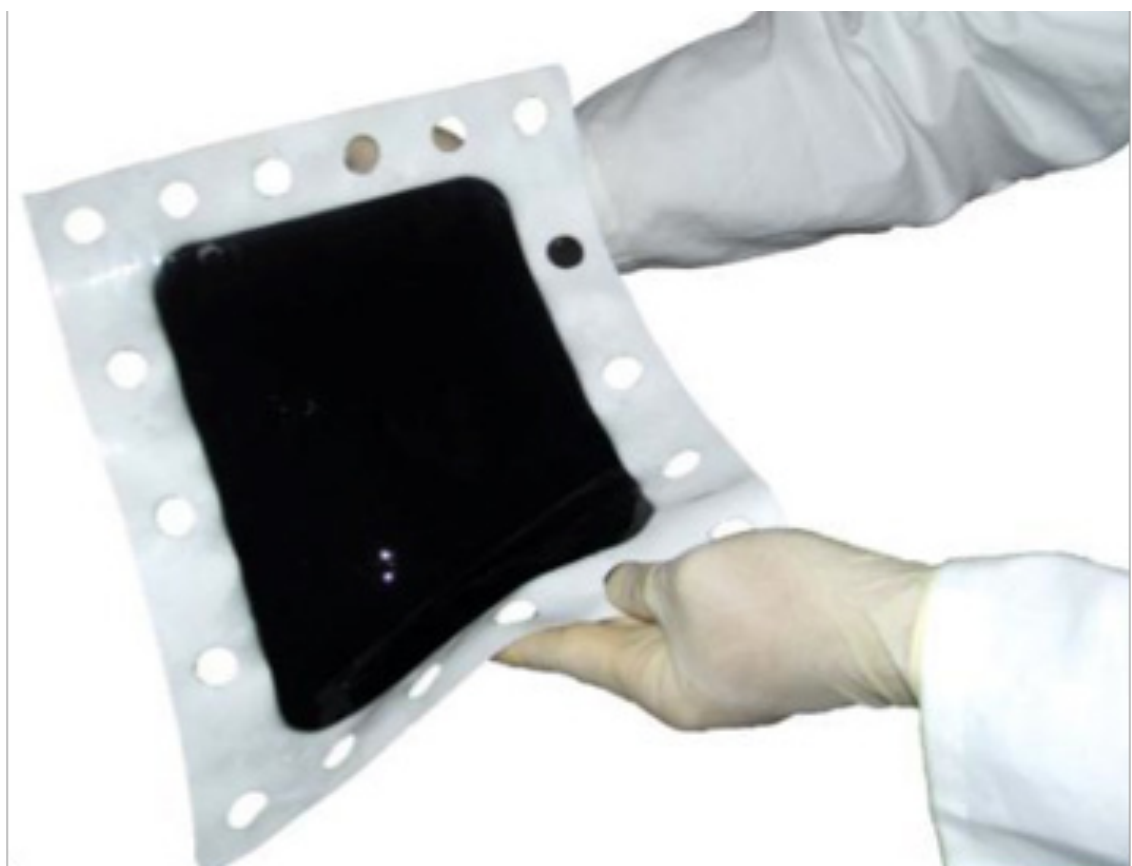
The membrane is CERAPEM™ and is proprietary technology patented by CeramHyd. This membrane represents very high order material science as the membrane is a ceramic but with all of the physical characteristics of a more traditional polymeric membrane.

CERAPEM™ can do what no other membrane does.

Technology Engine

The membrane is installed in electrochemical “stacks” which are the engine of the technology in combination with the CERAPEM membrane. When the stack is electrically charged and a liquid is pumped through the stack, the molecules making up the liquid are broken.

- Made by CeramHyd as a flat sheet membrane
- Flexible material
- Operates at extreme high or low pH environments
- Cleaned with high/ low pH substances and aggressive chemicals
- Membrane is not subject to oxidation
- Membrane is not subject to bivalent ion fouling
- Effective as a “low temperature” membrane up to 150C



HYDROGEN PRODUCTION

An application for producing Hydrogen from surplus or low-cost electricity using only water as a raw material.

- Industrial Sector
- “Power to Gas”
- Energy Applications

DISINFECTION

An application for producing water treatment chemicals from ordinary salt and water. Chemicals include:

- Hypochlorous Acid (HClO)
- Caustic Soda (NaOH)

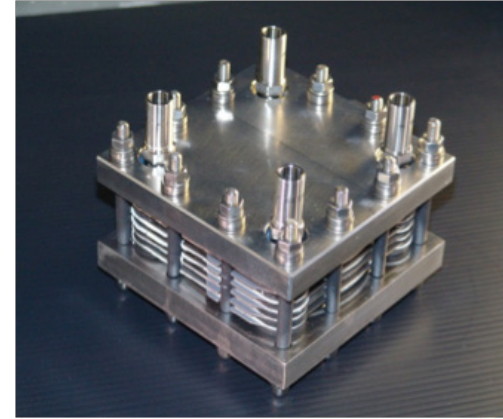
A safe and on-site means of producing essential chemicals.

Disruptive Technologies

Clients value being able to produce their raw materials on-site. This saves money, reduces logistical complexity and improves safety.

CeramHyd offers two core technologies:

1. Production of Hydrogen for energy applications; and
2. Production of water treatment chemicals for the water and food industry. (Hypochlorous Acid HClO and Caustic Soda NaOH)



Licensing Opportunities

CeramHyd is committed to making the CERAPEM™ available for a broad range of applications and welcomes investors and partners who want to use CeramHyd technology in their applications.

A world of possibilities...

- Membrane supply under licensing or private labeling arrangements
- Fuel cell applications
- Battery applications
- Disinfection applications in the white goods sector. Mini-stack applications for dishwashers, washing machines etc
- Disinfection applications in recreational services. Swimming pools, spas, etc
- Distributed power applications
- And many more

Services available...

Applications Engineering
Piloting and Testing
Custom Engineering
Equipment Supply
Field Services
Spare Parts Supply
Guaranteed Warranty