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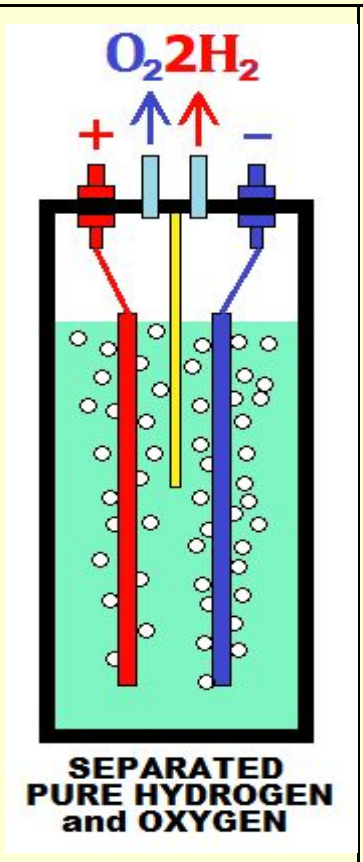
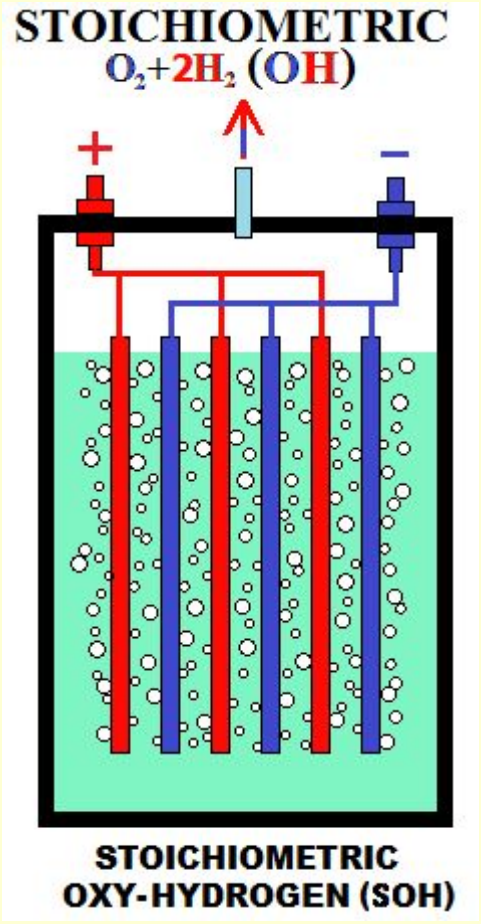
Water-Electrolysis Production of Hydrogen, Oxygen, SOH and MOH Gases

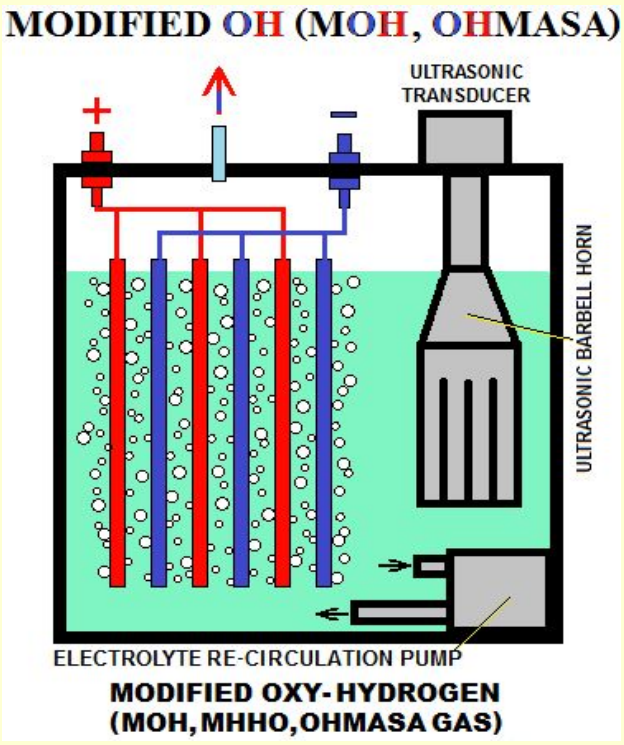


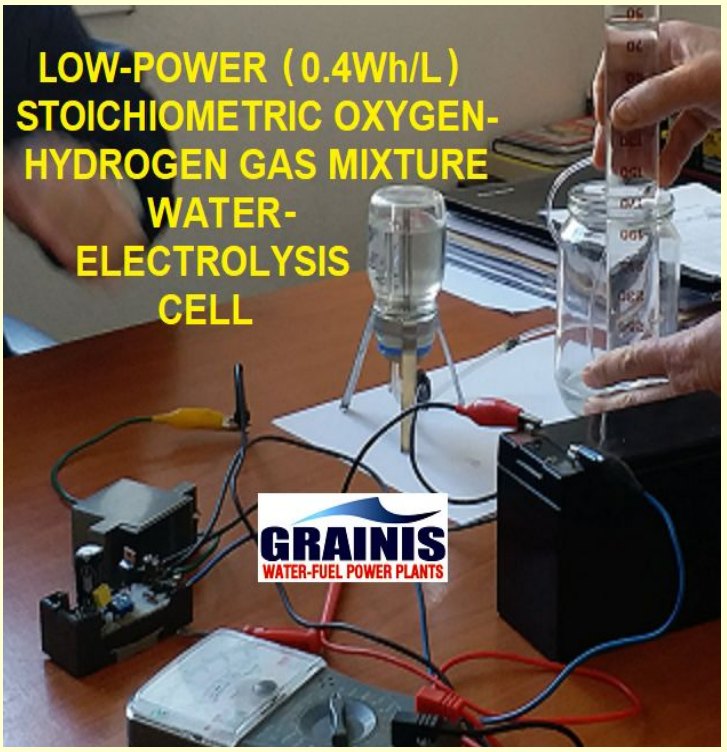
1. The **simplest Water Electrolysis Cell.** Two Stainless Steel (316L) **Electrodes : Cathode (-)** and **Anode (+)**, immersed in **25%** Water Solution of **KOH (Potassium Hydroxide)** and supplied with **Power**, which starts production of **Oxygen (O_2)** and **Hydrogen (H_2),** which gases could be **separated** by a simple polymer **screen** between the electrodes (the **yellow** line). Thanks to a special **Electronic Device**,

comprised of three **Pulse-Modulators**, the Current supplied is being **modified** into **Pulses** with various **Frequency, Peak, Amperage, Voltage and Duration**. Thus we have **1 millisecond** power supply pulse, followed by **100 ms** gas production **without any power supply.**



2. If we remove the **screen** between the Electrodes, both Gases produced will be **mixed** together in **2:1 Ratio** (**$2H_2$ + O_2**), called **Stoichiometric Ratio**. For a greater production volume, we can **multiply** the electrodes to **unlimited** number.
Thus we produce the **Stoichiometric Oxygen-Hydrogen (SOH) Gas Composition,** or **SOH Gas** for short .
Using the **Electronic Modulator** shown above, we **cut** the power supplied, into **tiny Pulses.** These **Pulses** generate in **1ms** period a powerful Electromagnetic **Concentrated Polarization** of the **Electrodes**, which allows the **SOH Gas** to be produced **without any power supply** for a tiny, **100ms period**.These **on-off cycles** repeat about **10 times** in a second.
Or we produce SOH Gas with **extremely small quantity of electric energy**, measured less than **0.4 Wh** per liter SOH Gas, or **0.9kWh** per kilogram SOH Gas, **without violating** any **Physics' Laws**. This rate is **10 times better** than the best rates (**4-5Wh/L SOH**), published by all the SOH-Gas Generators' mass-producers around the globe.
Pure Hydrogen, contained in the SOH Gas, we produce by our Cell with a **12.3 kWh/kg** rate,vs **50 kWh/kg** regular.
The **SOH's Flame** shows **Plasma properties**, because it is **electroconductive, Ionized Gas**, Its own **flame temperature** is **only 140 deg.C**, but it can heat some **UHTC ceramics** up to, and over their **melting** and **boiling** point (**>6,000 deg.C**), or triple times the **Hydrogen's Flame** temperature. This property could be used in various **Thermal Engines** and **Generators**.





3. When we immerse a **Low-Frequency Ultrasonic Device** (**Titanium Barbell Horn,** or an **Infrasonic Transducer/Oscillator**) in the Cell's Electrolyte, we see its color becomes **white**. This is because of the gaseous **nano-bubbles**, generated by the infrasonic impact. If we try to **ignite** the gas produced by a **spark**, we'll fail. Although the **regular** SOH **always explode** when **ignited by a spark.** Those **signs** are the **first ones**, showing that we have produced **a different gas**, with **different properties** and **content**. We called that Gas "**Modified Oxygen-Hydrogen" (MOH)** Gas. We noticed these properties in 2008, In the same year, when **Dr. Ryushin Omasa** from Tokyo, Japan, patented this MOH gas as **Ohmasa Gas.**

If we go on experimenting, we'll see, that this gas **:**

- Can be **liquefied** at **1bar/-178deg.C**, unlike the regular SOH, which **cannot be liquefied at all.**

- Can be **pressurized over 700 bar**, unlike the regular SOH, which **explodes** at **2bar** pressure.

- Can be **filled** in **CNG. LPG** and **LNG** tanks and **stored** there for **years**, unlike the regular SOH. It shows **no permeation**, **diffusion** and **embrittlement** effects as the Pure Hydrogen - H_2 does

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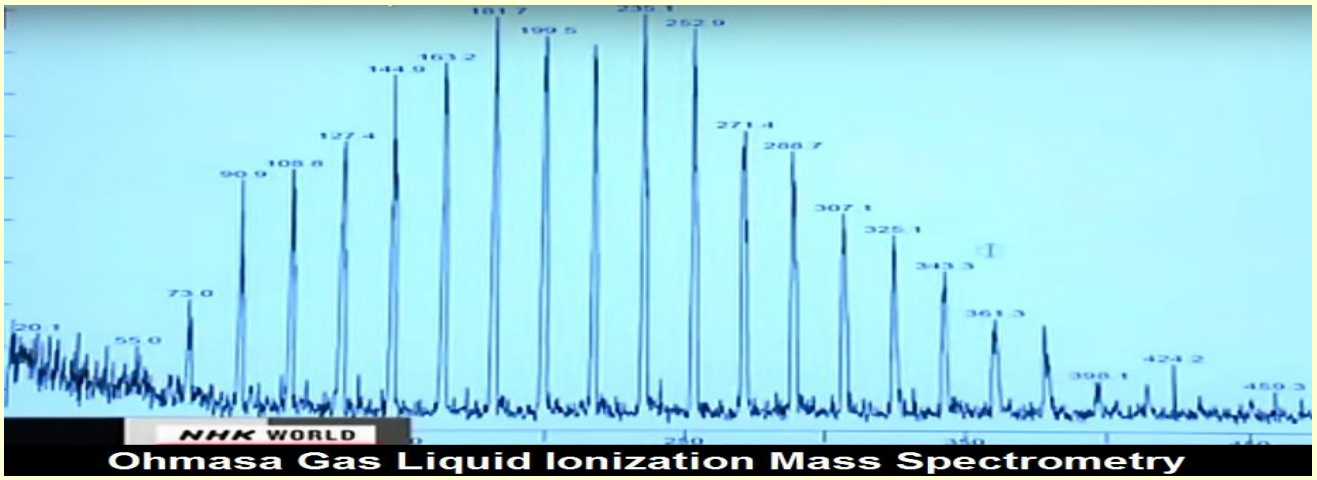
- Can be used as a **100% single fuel** in simple **Gasoline IC Engines :**

The **Ultrasono-Modified Oxygen-Hydrogen (MOH) Gas**, patented in **2008** and **2011** by **Dr. Ryushin Omasa** (on the pictures above), from **Tokyo, Japan**, and promoted as **Ohmasa Gas,** is an **outstanding discovery,** which could change the planet.

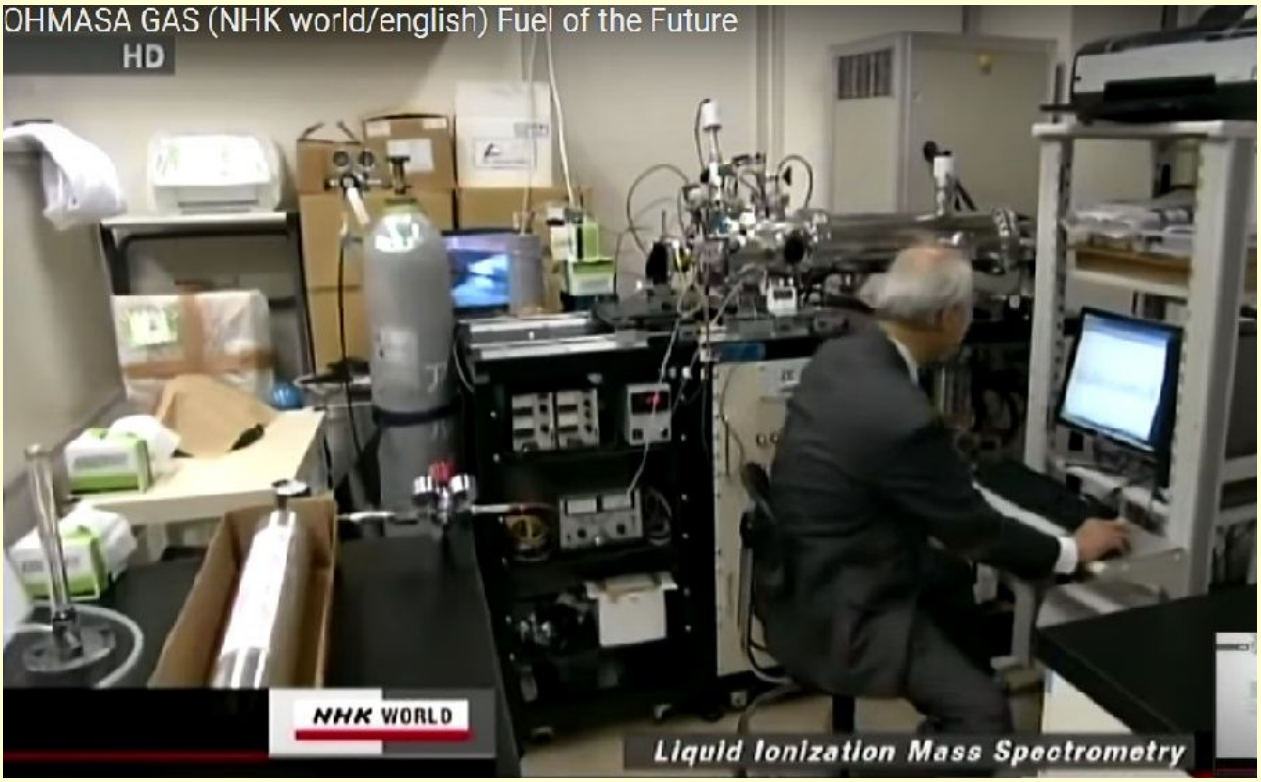
Patent : http://www.patentsencyclopedia.com/app/20110139630#ixzz3LOxSiPwy

Video : https://www.youtube.com/watch?v=NUPE0Z9V82E

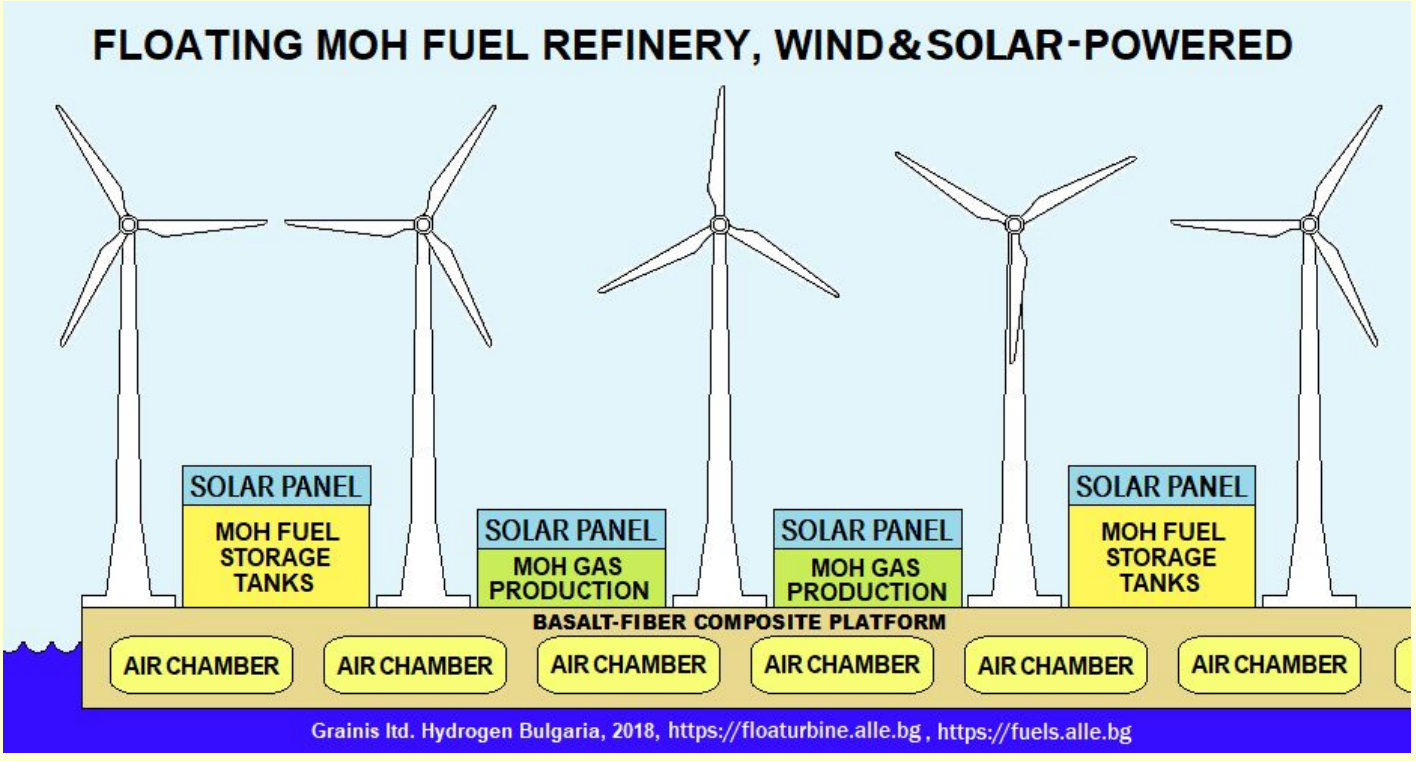
Our Contribution to the MOH/Ohmasa technology development is our **Off-Grid Low-Power Water-Electrolysis Cell. MOH** is the **ideal 100% clean and renewable fuel,** and the **perfect - safe, dense and cheap Pure-Hydrogen Storage. One m^3 of liquid MOH** contains **2.5 times more kgs of H2** than **1m3 of liquid H_2 alone**.The MOH's unique properties are based on its **unique chemical content.** Unlike the regular SOH, it contains also **OH-** and **H+ ions**, plus trace quantities of **Deuterium** and **Tritium**.



Analyses procedures took place in the Labs of the **Tokyo University.**



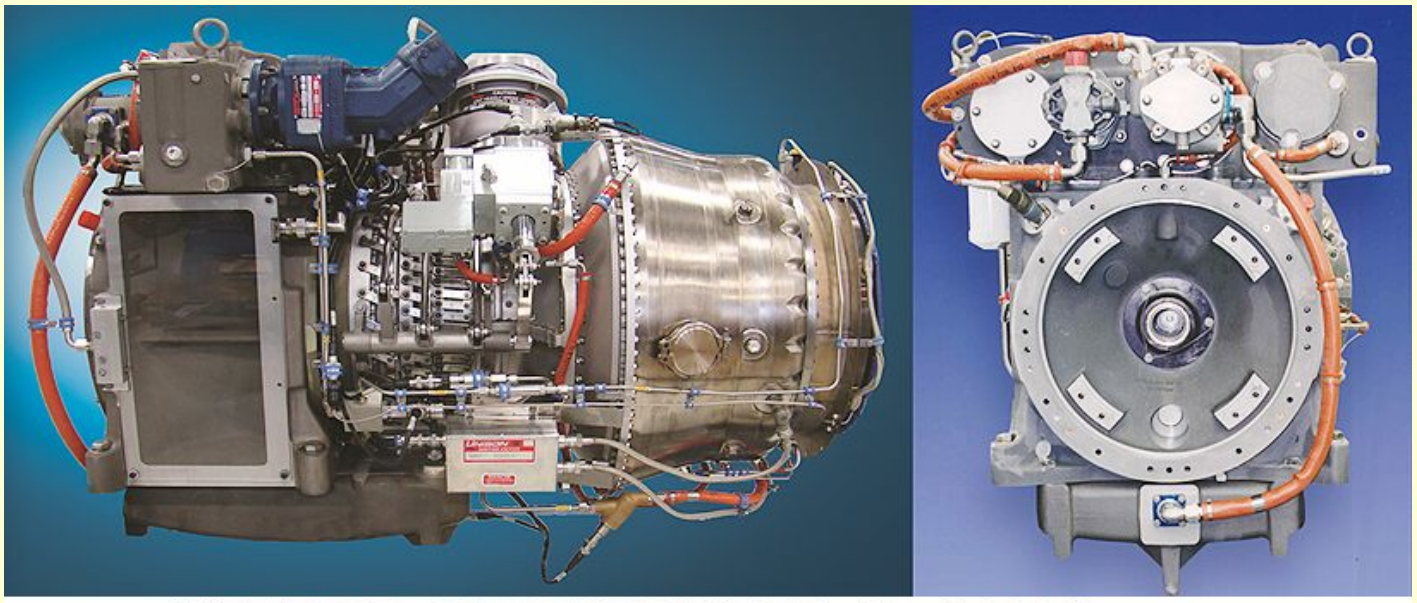
MOH's point of **liquefaction (-178^{0}C**) is only **16^0 C** close to that of the **Liquid Natural Gas - LNG** (**-162^{0}C**).
Sp it can be filled and stored for years in various **LNG** tanks, for example, the **Hexagon-Lincoln** ones, or else. **Liquid MOH** is a **perfect Energy** and **Pure-Hydrogen Storage**. MOH can be produced by **Solar or Wind Power Plants**, then **stored** in **CNG** or **LNG** tanks for **unlimited** term. Large **Floating** Wind- and Solar- Powered **MOH Refineries** could be built for example on floating barges **in the middle of the sea**, in windy and sunny zones, producing **MOH Fuel non-stop, 24/7.**



Compressed MOH could be also pumped in **Gas Pipelines** and various **Gas Infrastructure**.
The **biggest problem** for the **Hydrogen-Electric (FCEV) Cars** world's expansion for example - the lack of **Hydrogen-Fueling Stations**, could be solved by introducing much cheaper and compact, **Container-Sized Off-Grid MOH Gas Generation & Fueling Stations**, which could be mass-produced and distributed along the main roads around the globe in unlimited quantities and in short terms.

These **Containerized MOH Gas Fuel Stations** will be much cheaper (~$300,000) than the existing Hydrogen Fueling Stations (~$ 2,000,000), and will produce and store non-stop compressed and liquefied MOH and 700-bar compressed Pure Hydrogen, out of plain water, at an **extremely low cost**.

Due to its **extreme thermal expansion**, (**1L Liquid MOH = 1,868 L Gas**), MOH can be used also as a fuel for various Gas Turbines.



VERICOR GAS TURBINE TF-40, 4,000 hp

L1.3m x H1m x W0.89m, 400 kg

http://www.vericor.com/products/marine-propulsion/tf-series-gas-turbines/

MOH-Fueled Small and **Micro-Turbines** with ultra-high rpm (like this compact **500,000rpm** gas turbine on the picture above), could make a **real revolution** in driving **gas-electric Bikes** and **Cars, Drones, Planes**, **Robots**, etc. Machinery.
MOH could be excellent fuel for **Airplane Turbofan Engines, Supersonic and Hypersonic RamJet, ScramJet, Reaction Rocket Engines**, etc. **Aerospace** applications.
It can be used as a **Hydrogen Storage** for **Fuel Cells** and as a **liquid fuel** for **MOH-Seebeck Gas-Electric Engine-Generators :** https://www.linkedin.com/pulse/moh-seebeck-gas-electric-car-engine-emil/

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