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H2HUBB Official Test Report

Evaluation Introduction

Our report summarizes our analysis of the Evolv H2GO Hydrogen Water Bottle offered by the company Evolv. H2HUBB classifies this device as a high-pressure (psi) H2 water portable system. The device features a PEM/SPE membrane to ensure H2 gas production regardless of source water conductivity (TDS). Its session time-frame or cycle time-frames are 5 minutes and 10 minutes. We evaluated the system's dissolved hydrogen performance at 5-10 minutes. The unit contains a 3.7 V +1500 mAh battery, as stated by the battery specs. Our investigation was to analyze whether the product would meet our H2 product performance standards, which must be achieved to be approved and recommended by H2HUBB. To learn more about our H2 performance standards for hydrogen water bottles, visit **H2HUBB.**

H2 Products

- Company: Evolv
- Product Name: H2GO
- Type: High-Concentration H2 Water Device
  - PEM/SPE
  - Portable hydrogen water generator
  - High-PSI bottle
- Model: H2GO Superwater
- URL Link: https://tryevolv.com/

Method and Procedure

- Distilled water: 6.0 pH (verifies that unit can function with low water conductivity)
- ΔpH (delta pH): Did not increase
- Water Temperature: 65~70°F/ 18~21°C
- Bottle Vol Size: 0.230 L or 230 mL
- Cycle Time Frame:
  - 5-minutes
  - 10-minutes
- Contamination Tests:
  - Chlorine generation (Cl2)
  - Ozone Generation (O3)
- Test Location: 277 meters (909 ft elevation)
- Test Methodology:
  - Titration: H2Blue® Test Reagent
- All Dissolved H2 Concentration Tests Converted to SATP (water temp and pressure)
- Claimed Dissolved H2 mg/L: 2.5-5.0 mg/L (post 5~10 minutes)

Test Results

To perform a dissolved hydrogen gas concentration test on the bottle, we began by filling it with distilled water slightly above the bottom of the threads. We then secured the lid on the bottle and activated the hydrogen water bottle for either the 5-minute setting or the 10-minute setting. All of the dissolved molecular hydrogen concentration tests were conducted using H2Blue. We performed a minimum of eight tests and averaged the results. The results displayed in this report are averages rather than peak concentrations.

H2 Concentration at SATP:

- 5-mins avg mg/L (ppm): ≅ 2.50 mg/L (ppm)
- 10-mins avg mg/L (ppm): ≅ 4.55 mg/L (ppm)

Avg H2 mg Produced in Designated Vol:

- 5-mins: ≅ 0.57 mg (≡ 7.0 mL Dissolved)
- 10-mins: ≅ 1.0 mg (≡ 12.14 mL Dissolved)

- **Claimed H2 mg/L (ppm) confirmed:** Yes

H2HUBB Hydrogen Concentration Assessment

- According to our testing, the H2GO Hydrogen Water Bottle exhibits a dissolved molecular hydrogen concentration of 2.50 - 4.55 mg/L (ppm) throughout its cycle durations of 5 to 10 minutes. Based on current scientific literature in human studies, the dissolved hydrogen concentration on the 5-10 minute settings is deemed sufficient to induce therapeutic effects. The bottle surpasses our H2HUBB standards for both **H2 Concentration and Daily Dose of H2**, and we recommend users utilize the 10-minute cycle time for consuming hydrogen water from the device.

Contamination Test:

- Chlorine (Cl2): No detectable levels
- Ozone (O3): No detectable levels

Internal Performance

Manufacturer's Rated Electrical Values: (as stated on the power supply)

- **Type of device/electrolytic cell**
  - Pure H2: PEM/SPE membrane
- **Applied volts:**
  - 3.7 volts
- **Total Amps:**
  - 1500 mAh (1.5 amps)
- **Total watts:**
  - 5.55 Wh (watts)

- **Electrolysis volts:**
  - 2.30 volts
- **Electrolysis amps:**
  - 0.60 amps
- **Total watts:**
  - 1.38 watts

H2 Production vs. Dissolved Hydrogen:

- **Theoretical Max H2 production:**
  - 4.57 mL/min or 0.38 mg/min
- **Theoretical Max Dissolved H2 Level**
  - 5-mins: ≅ 8.18 mg/L (ppm)
  - 10-mins: ≅ 16.35 mg/L (ppm)
- **Measured Dissolved H2 reading:**
  - 5-mins: ≅ 2.50 mg/L (ppm)
  - 10-mins: ≅ 4.55 mg/L (ppm)
- **Percentage of Max H2 Dissolved (as measured):**
  - 5-mins: ≅ 30.58% dissolved
  - 10-mins: ≅ 27.83% dissolved
- **Percentage of Max H2 Undissolved (loss):**
  - 5-mins: ≅ 69.42% undissolved
  - 10-mins: ≅ 72.18% undissolved

Product Assessment

Functionality:

- Power on/off button
  - Located on the H2 generator.
  - Press the power button to initiate electrolysis for hydrogen gas production and initiate a 5-minute session, then shuts off.
  - Press the power button twice to initiate a 10-minute session time then shuts off.
- Magnetic USB charging port
  - Located on the backside of the device.
- Anode reservoir off-gas port
  - Pin-hole located on the bottom of the bottle.

Reliability:

- New: Yes
  - Initial test results and evaluation are currently on the report. (see Overall Opinion)

Cost:

- Evolv H2GO Hydrogen Water Bottle®): $199.00 USD
- H2 Hubb discount: TBA
- H2 Hubb recommendation cost: TBA

Overall Opinion

The Evolv H2GO Hydrogen Water Bottle is a well-engineered portable hydrogen water unit. Our evaluation found that the device produced approximately 4.55 mg/L (ppm) of dissolved H2 in 230 mL of water during a 10-minute session, resulting in 1.0 mg of H2 (≡ 12.14 mL) dissolved in the bottle. The total mass of hydrogen gas (in milligrams) dissolved by the bottle within 10 minutes falls within the acceptable range for a portable H2 water generator (>0.4 mg). Additionally, the milligram dosage of H2 after the 10-minute cycle time exceeds H2HUBB's daily standard of 0.8 mg of H2 per day with just one bottle, putting it on par with some of the best-performing hydrogen water bottles we have tested and currently recommend.

Dissolving a total of 1.0 mg of H2 per session is becoming a benchmark for high-performing hydrogen water bottles, and the Evolv H2Go hydrogen water bottle achieved this. It is worth noting that typically, high-end hydrogen water bottles tend to dissolve 15-20% of the hydrogen gas they generate and dissolve at least 1.0 mg of H2 in their designated bottle during their highest cycle time frames. The device exhibited a Dissolved Hydrogen Efficiency (DHE) of nearly 30%, which is highly commendable for hydrogen water bottles.

Dissolved hydrogen concentration (mg/L (ppm)) is a critical performance metric, as research suggests that 1-3 mg of H2 or more per day appears to be therapeutic for humans. Furthermore, the **IHSA** standard for this type of product is a minimum of 0.5 mg/serving or 0.5 mg/L. H2HUBB's performance standard for hydrogen water devices is slightly higher than IHSA, as we require the device to provide a concentration of 0.8 mg/L (ppm) and 0.8 mg/day consistently. The Evolv H2GO Hydrogen Water Bottle surpassed H2HUBB standards for both **H2 Concentration and Daily Dose of H2**. Based on current research data, we believe the device's mg/L (ppm) performance provides adequate levels of hydrogen gas to induce therapeutic effects in humans. **According to our test results, the product will be featured on our website as a Level 3 hydrogen water device**. You can view the meaning of this ranking **here**. We are pleased with the device's dissolved hydrogen concentration.

One concern we encountered with the bottle is the inconsistency of the dissolved hydrogen concentration. The device shows an approximate 20% variation in dissolved hydrogen gas on the 10-minute setting (3.7-4.7 mg/L). Additionally, the concentration occasionally measures at 2.0-3.0 mg/L (ppm) during the same cycle. We would like to see more consistency in the dissolved hydrogen readings.

We suspect this discrepancy may be due to the bottle not forming a proper seal when the lid is secured. Hydrogen water bottles such as this one rely on a high-pressure sealed system to increase the internal gas partial pressure, resulting in a higher concentration of molecular hydrogen gas (H2). Ensuring the lid and bottle form a secure seal is crucial to prevent hydrogen gas or water from escaping due to the increased pressure. If the washer does not compress properly, it can lead to lower hydrogen gas concentrations than intended. Improving the seal on the bottle and better quality control (QC) could result in more consistent and reliable H2 concentrations.

Overall, the Evolv hydrogen water bottle is aesthetically appealing, engineered with high-quality materials, and effectively dissolves a therapeutic concentration of hydrogen gas into its 230 mL capacity. The validity of the manufacturer's claims regarding the bottle's hydrogen gas performance is not in question and the device's performance aligns closely with the product's marketing materials. We have no safety concerns with the system, as it appears to have implemented sufficient safety measures and effectively prevents the production of chlorine and ozone in the drinking water. We are generally pleased with the performance of the device. The H2GO Hydrogen Water device performed above our minimum performance standards and, in the opinion of H2HUBB, the system appears to be safe and suitable for in-home H2 Water Therapy.

We desire to move forward with recommending the product to the public.

Approved By: Tywon Hubbard

Tywon Hubbard

CEO, H2HUBB LLC