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H₂HUBB Official Test Report

Evaluation Introduction

Our report summarizes our analysis of the H₂ Hydrate Hydrogen Water Pitcher offered by the company Qlife Hydrogen Solutions. H₂HUBB classifies this device as a base-pressure (psi) H₂ water pitcher system. The device features dual PEM/SPE electrolytic cells to ensure H₂ gas production regardless of source water conductivity (TDS). Its session time-frame or cycle time-frames are 10 minutes and 20 minutes. We evaluated the system's dissolved hydrogen performance at 10 and 20 minutes. The unit contains 3.7 V +3000 mAh battery (3x), 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](https://www.h2hubb.com).

H₂ Products

- Company: Qlife Hydrogen Solutions
- Product Name: H₂ Hydrate Hydrogen Water Pitcher
- Type: Base-Concentration H₂ Water Device
 - PEM/SPE
 - Hydrogen Water Pitcher Device
 - Base-PSI System
- Model: HWP-2411
- URL Link: [https://qlifetoday.com/product/H₂hydrate/](https://qlifetoday.com/product/H2hydrate/)

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
- Pitcher Test Vol Size: 1.85L or 1850 mL
- Cycle Time Frame:
 - 10-minutes
 - 20-minutes
- Contamination Tests:
 - Chlorine generation (Cl₂)
 - Ozone Generation (O₃)
- Test Location: 277 meters (909 ft elevation)
- Test Methodology:
 - Electrochemical detection using Unisense H₂ Microsensor.
- All Dissolved H₂ Concentration Tests Converted to SATP (water temp and pressure)
- Claimed Dissolved H₂ mg/L: 1.60 mg/L (post 20 minutes as stated in manual)

Test Results

To measure the dissolved hydrogen gas concentration, the pitcher was filled with 1.85 liters (62.5 oz) of distilled water. The lid was securely fastened with the water outlet switch closed, and the system was then activated using either the 10-minute or 20-minute hydrogen generation setting. All measurements were conducted using the Unisense H₂ Microsensor with UniAmp amplifier. Three replicate tests were performed to ensure accuracy, and the results were averaged to determine the bottle's performance. While the primary emphasis is on the average dissolved hydrogen concentration, peak concentration values are also reported to provide a comprehensive analysis of the bottle's capabilities.

H₂ Concentration at SATP:

- 10-mins avg mg/L (ppm): $\cong$ 1.10 mg/L (ppm); SD: 0.009
- 20-mins avg mg/L (ppm): $\cong$ 1.58 mg/L (ppm); SD: 0.02

Peak H₂ Concentration at SATP:

- 10-mins peak mg/L (ppm): $\cong$ 1.20 mg/L (ppm)
- 20-mins peak mg/L (ppm): $\cong$ 1.62 mg/L (ppm)

Avg H₂ mg Produced in Designated Vol:

- 10-mins: $\cong$ 2.03 mg ($\equiv$ 24.64 mL Dissolved)
- 20-mins: $\cong$ 2.92 mg ($\equiv$ 35.48 mL Dissolved)
- Claimed H₂ mg/L (ppm) confirmed: Yes

H₂HUBB Hydrogen Concentration Assessment

- According to our testing, the H₂ Hydrate Hydrogen Water Pitcher consistently achieved dissolved molecular hydrogen concentrations ranging from 1.10 to 1.58 mg/L (ppm) during both the 10- and 20-minute generation cycles, with a peak concentration of 1.62 mg/L (ppm) measured using the Unisense H₂ Microsensor. Based on current human clinical literature, these concentrations are sufficient to provide therapeutic benefits. The device exceeds H₂HUBB's performance standards for both **H₂ Concentration and Daily Dose of H₂**. For practical use, we recommend the 20-minute cycle as the optimal dose and setting for preparing hydrogen-rich water with this pitcher.

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 (2x)
- **Applied volts:**
 - 11.1 volts (3 × 3.7 V batteries in series)
- **Total Amps:**
 - 3000 mAh (3.0 Ah)
- **Total watts:**
 - 33.3 Wh (watts)

Product Assessment

Functionality:

- Power on/off button
 - Located on the front of the H₂ generator.
 - Press the power button once to initiate electrolysis for hydrogen gas production for a 10-minute session, then shuts off.
 - Press the power button twice to initiate a 20-minute session time then shuts off.
- Pitcher Reservoir
 - Holds up to 2 liters of drinking water.
- Pitcher Lid
 - Securely fits onto the reservoir to prevent leaks or spills.
 - Features a water outlet switch that allows the user to open or close the dispensing port as needed.
 - Includes a water inlet port for convenient refilling without removing the lid.
 - Designed with an air replacement channel (water inlet port) to ensure smooth, controlled pouring.
- USB-C charging port
 - Located on the backside of the device.
- Anode reservoir off-gas port
 - Pin-hole located on the bottom of the pitcher.

Reliability:

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

Cost:

- H₂ Hydrate Hydrogen Water Pitcher: \$296.00 USD
- H₂ Hubb discount: TBA
- H₂ Hubb recommendation cost: TBA

Overall Opinion

The H₂ Hydrate Hydrogen Water Pitcher is a well-built base-PSI hydrogen water generator. In our evaluation, a 20-minute operation cycle produced approximately 1.58 mg/L (ppm) of dissolved H₂ in 1.85 L of water, yielding a total hydrogen content of 3.0 mg, equivalent to 35.48 mL of H₂ gas at SATP. Dissolved hydrogen was measured using the Unisense H₂ Microsensor with UniAmp amplifier, which provides high accuracy and real-time electrochemical detection, reducing variability common associated with other oxidimetry methods. This molecular hydrogen dose is sufficient to deliver a therapeutically relevant amount of H₂ to the human body, provided the person consumes at least 500–1000 mL (16.9–33.8 oz) of H₂ water within 1 hour after production. Importantly, even if only 500 mL of the hydrogen-rich water is consumed, the user would ingest approximately 0.8 mg of H₂, which meets H₂HUBB's minimum daily effective dose standard based on the scientific literature.

The pitcher is also notable for its larger capacity, offering more hydrogen-rich water per cycle than most hydrogen water bottles on the market. Based on our testing, the H₂ Hydrate Hydrogen Water Pitcher is an effective, higher-volume option for consumers seeking both convenience and clinically relevant hydrogen dosing.

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 H₂ Hydrate Hydrogen Water Pitcher offered by Qlife Hydrogen Solutions 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 able to easily provide 1-3 mg of H₂ per day.** We are pleased with the device's dissolved hydrogen concentration.

During our testing, we observed a peak dissolved hydrogen concentration of 1.62 mg/L (ppm). Achieving this level required a slight buildup of internal partial pressure above atmospheric pressure (1 atm / 14.7 psi), measured at approximately 15.15 psi, which resulted in mild supersaturation of hydrogen gas in the water. Given the device's design and its limited ability to sustain internal pressure, this outcome is likely explained by two contributing factors: (1) the formation of hydrogen nanobubbles, which can enhance apparent solubility, and/or (2) the device's ability to momentarily sustain a small partial pressure increase. However, due to minor pressure losses through the lid and an imperfect seal, the system cannot reliably maintain elevated pressure over time. These findings were confirmed using the H₂HUBB Unisense H₂ Microsensor, a customized electrochemical sensor capable of accurately detecting dissolved hydrogen concentrations from the μ mol range up to 20 mg/L. This high-resolution detection enables precise identification of subtle supersaturation effects that would not be reliably captured using conventional colorimetric methods. Based on these results, H₂HUBB classifies this product as a base-pressure hydrogen water device. Although it did not achieve some of the higher hydrogen concentrations reported online, it consistently produced therapeutically relevant levels of dissolved hydrogen, supporting its classification as an effective hydrogen water system.

Interestingly, the hydrogen concentrations observed may be more practical given the device's large capacity of 2 liters (68 oz), particularly since the lid does not incorporate a pressure-retaining seal to build and sustain internal pressure. According to Henry's Law and the principles of gas solubility and exsolution, the higher the dissolved gas concentration above saturation (1.57 mg/L at SATP), the more rapidly the gas equilibrates with the atmosphere and dissipates [1][2]. This is a fundamental property of all atmospheric gases—similar to how carbon dioxide rapidly escapes from a pressurized champagne bottle when opened. For hydrogen, this means that higher concentrations correspond to a shorter half-life in water. For example, hydrogen at the saturation point of 1.57 mg/L has a half-life of approximately 2 hours at SATP [3], whereas hydrogen at 8.0 mg/L has a half-life closer to 1 hour [4], representing a 50% increase in the dissipation rate. Given that most users are unlikely to consume a full liter of water within a short timeframe (10–15 minutes), producing concentrations above 2.0 mg/L could lead to more rapid H₂ loss before ingestion. The tested hydrogen levels therefore appear well-matched to the product's current design, which prioritizes volume and usability over pressure retention, balancing practicality with therapeutic efficacy.

Considering that the World Health Organization (WHO) recommends a daily water intake of approximately 3.7 liters for men and 2.7 liters for women [6], and several human studies on hydrogen water have used daily volumes of 1.5 to 2 liters [7][8], this product aligns well with that model. The pitcher's 2-liter capacity enables consumers to conveniently incorporate 1–2 liters of their daily hydration as hydrogen-rich water, integrating therapeutic dosing into a routine already consistent with established hydration guidelines.

Overall, the H₂ Hydrate Hydrogen Water Pitcher is a well-designed system constructed from safe materials and capable of consistently producing therapeutic concentrations of dissolved hydrogen gas within its 2 L capacity. The manufacturer's safety claims were supported by our findings, and the device's performance meets and, in several aspects, exceeds H₂HUBB's objective internal standards. No safety concerns were identified during testing, and the system effectively incorporates safeguards to prevent the formation of harmful byproducts such as chlorine or ozone in the drinking water. Based on our evaluation, the H₂ Hydrate Hydrogen Water Pitcher represents a safe, practical, and reliable option for in-home hydrogen water therapy, offering consumers both usability and clinically relevant hydrogen dosing.

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

H₂ Hubb LLC disclaimer: All tests conducted and test results produced by H₂ Hubb LLC have been done according to industry-accepted practices and standards. Nevertheless, these results may not necessarily reflect test results performed by manufacturers, suppliers or third-party labs. Our test results are independent of all other parties, and testing by other parties may produce different results. We understand that many variables are involved in testing, some of which are extremely difficult to control. These reports are not meant or intended for any other purpose but to uphold H₂ Hubb LLC's business practices and to validate the reasons for our recommendations.



Approved By: Tywon Hubbard

A handwritten signature in black ink, reading 'Tywon Hubbard'.

CEO, H₂HUBB LLC

