



📍 Overland Park, KS
📞 620-805-1216
✉ tywon@h2hubb.com
🌐 www.h2hubb.com

H₂ HUBB Official Test Report

Product:

Name: Q-Cup Max

Company: Q-Life (Micro Research Institution Inc)

Type: High-Concentration H₂ Water Device

- PEM/SPE
- Portable hydrogen water generator
- High-PSI bottle

Model: WPI-8003

Serial Number: 8003210067

Tester: Tywon Hubbard (TH)

Testing start date: 8/19/21

Completion date: 8/30/21

PERFORMANCE:

H₂ mg/L Concentration Test:

- **METHODOLOGY:**
- Distilled water (6.0 pH, verifies that unit can function with low water conductivity)
- Water Temperature: 65~70F/ 18.3~21C
- Bottle Vol Size: 0.24 L or 240 mL
- Session Time Frame: 5-minutes
- 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: 3.0~4.0 mg/L (post 5~10 minutes)

H₂ mg/L (ppm) Concentration Test at SATP:

- **5-mins avg mg/L (ppm):** ≈ 2.84 mg/L (ppm)
- **10-mins avg mg/L (ppm):** ≈ 4.42 mg/L (ppm)
- **Avg H₂ mg Produced in Designated Vol:**
 - **5-mins:** ≈ 0.70 mg
 - **10-mins:** ≈ 1.10 mg
- **Total H₂ milligrams able to be ingested in 1 liter:**
 - **5-mins:** ≈ 2.91 mg
 - **10-mins:** ≈ 4.58 mg
- **Dissolved H₂ mg/L (ppm) range:** 2.84~4.42 mg/L (ppm)
- **Claimed Mfgr's H₂ mg/L confirmed:** Yes

INTERNAL BREAKDOWN AND PERFORMANCE:

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

- **Type of device/electrolytic cell**
 - Pure H₂: PEM/SPE membrane
- **Applied volts:**
 - 7.4 volts

- **Total Amps:**
 - 750 mAh (0.750 amps)
- **Total watts:**
 - 5.5 Wh (watts)

PRODUCT ASSESSMENT:

Functionality:

- **Power on/off button**
 - Hold down for 2-seconds to activate.
 - Initiates electrolysis for hydrogen gas production.
 - Initiates 5-minute session time then shuts off.
- **Micro-USB Type C charging port**
 - Located on the backside of the device.
 - Fast charging.
- **Anode reservoir off-gas port**
 - Pin-hole located on the bottom of the bottle.

Reliability:

- **New: Yes**
 - Initial test results and evaluation currently on the report. (see Overall Opinion)
- **3 months: N/A**
- **6 month: N/A**
- **1 year: N/A**
- **Reliability Summary**
 - N/A

Cost:

- **QLife (QCup Max™):** \$259.00 USD
- **H₂ Hubb discount:** \$25.90 (10%)
- **H₂ Hubb recommendation cost:** 233.10 USD

Overall Opinion:

The QCup Max portable hydrogen water generator is a high-end, well-engineered portable hydrogen water unit. H₂HUBB classifies this device as a high mg/L 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 cycles time-frame is 5 minutes. We evaluated the system's dissolved hydrogen performance at 5 and 10 minutes (two 5 min sessions). The unit contains a 7.4 V +750 mAh battery, as stated by the battery specs.

The unit generated 2.84 mg/L (ppm) in 240 mL of water on the 5-min session time-frame and 4.42 mg/L (ppm) when operated for 10-mins. This converts to 0.7~1.10 mg of H₂ dissolved into the designated volume size depending on the session time frame. The total milligrams of H₂ gas dissolved by the bottle at 10 mins is exceptional for a portable H₂ water generator. Portable Hydrogen water generators are notorious for having low H₂ mg levels in their designated volumes. The 1.10 mg produced by the bottle per 10-minute session would deliver 4.58 mg of H₂ if one-liter water was ingested from the bottle (4.16 bottles).

Dissolved hydrogen concentration (mg/L(ppm)) is a critical performance metric as research is suggesting that 1~3 mg of H₂/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 be able to provide a concentration of 0.8 mg/L (ppm) and 0.8 mg/day consistently. The QCup Max device was able to surpass H₂HUBB mg/L and mg/day standard. We are pleased with the device's mg/L (ppm) measurement. Although the performance characteristic of the QCup Max bottle is exceptional, a point of suggestion worth considering is a larger bottle volume size. As of now based on our analysis, the bottle can provide individuals with 1.10 mg of H₂ per bottle at its highest H₂ concentration.

4.42 mg/L (ppm) [H₂ concentration] x 0.240 L (240 mL of H₂O) [water volume] = 1.10 mg of H₂ ingested

Conversely, if the water volume size of the bottle was 354 mL of water (12 oz) and the bottle was able to maintain a similar dissolved hydrogen performance, the bottle could provide >1.50 milligrams of H₂ per bottle at the highest H₂ concentration. Therefore, increasing the bottle volume size by 114 mL of water may increase the amount of hydrogen gas (e.g. milligrams) the bottle can provide by 40%. Obviously, this suggestion is contingent on the bottle maintaining its dissolved hydrogen performance. Nevertheless, it may be worth considering, as we are unaware of any portable hydrogen water bottles that can provide >1.50 mg of H₂ per session. Therefore, it will set this bottle far above most of the market in terms of hydrogen content performance.

One concern with high mg/L H₂ water portable systems is safety. These systems should have adequate pressure relief systems implemented into the device to manage the higher partial pressure (psi) generated by the system. The QCup Max features a passive pressure release cap that is activated once approx 70~71 psi is reached. We thoroughly tested the cap's ability to release pressure. The cap is simple and efficient at acting as a passive pressure release valve while maintaining adequate pressure (psi) for achieving high mg/L H₂ levels. The system passed our standards for safety and

high psi. Overall the performance of the device met or surpassed our standards. We would like to move forward with recommending the unit to the general public via featuring it on our recommendation page

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Approved by: Tywon Hubbard

A handwritten signature in black ink, appearing to read 'Tywon Hubbard', with a stylized flourish at the end.

Tywon Hubbard,
CEO, H₂ HUBB LLC.

Tywon@H2HUBB.com