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## H<sub>2</sub>HUBB Official Test Report

### **Product:**

**Name:** Q-Spa

**Company:** Q-Life (Micro Research Institution Inc)

**Type:** H<sub>2</sub> Bath Device

- Oxyhydrogen system
- Portable

**Tester:** Tywon Hubbard (TH)

**Testing start date:** 4/16/21

**Completion date:** 5/19/21

### **PERFORMANCE:**

#### **H<sub>2</sub> Dissolved Concentration Test:**

- **METHOD:**

- H<sub>2</sub>HUBB did an initial assessment of the product to determine the methodology for the most accurate mg/L test results. Considering the device is an oxyhydrogen system (contains no membrane in the electrolytic assembly) producing both hydrogen and oxygen gas (66% H<sub>2</sub>/33% O<sub>2</sub>) we determine titration (H<sub>2</sub>Blue Test Reagent) will not produce the most accurate results. Therefore we submitted or paid for the product to be analyzed by H<sub>2</sub> Analytics, Henderson, NV, USA for dissolved hydrogen content. H<sub>2</sub> Analytics utilizes advanced gas chromatography for measuring hydrogen gas dissolved into water. H<sub>2</sub> Analytics provided us with a full lab report confirming the Q-Life Q-Spa's ability to dissolve hydrogen gas within the following water volume test sizes: 3 L, 4.5 L, 15 L, & 150 L. For the purposes of this report, we are only showing the test results and water temperature necessary to meet our standards for H<sub>2</sub>HUBB recommendation. The methodology necessary for conducting the gas chromatography on the product is listed in the full H<sub>2</sub> Analytics lab report which is in the possession of H<sub>2</sub>HUBB.

- **Dissolved H<sub>2</sub> Concentration Tests Results**

- 3L (20 min) - Quasi Dissolved + Dissolved H<sub>2</sub>: 1.14 mg/L; Dissolved H<sub>2</sub>: 1.04 mg/L
- 4.5L (20 min) - Quasi Dissolved + Dissolved H<sub>2</sub>: 1.15 mg/L; Dissolved H<sub>2</sub>: 1.26 mg/L
- 4.5L (20 min, 38°C) - Quasi Dissolved + Dissolved H<sub>2</sub>: 1.00 mg/L; Dissolved H<sub>2</sub>: 0.75 mg/L

#### **Chlorine Production Tests:**

- **METHOD:**

- To evaluate the electrochlorination of the device we conducted two separate tests. The first test was to evaluate the worst-case scenario by providing a significant amount of chloride (Cl<sup>-</sup>) to our minimum water volume size required for product recommendation, 3 liters. These conditions provide the greatest opportunity for generating the highest chlorine (Cl<sub>2</sub>) concentration in order to determine whether or not the system will produce a chlorine concentration above safe limits (approx: ≥ 6 mg/L (ppm)). We increased the TDS of the 3 liters of distilled water to ≈ 1000 TDS (2000 EC) of salt (NaCl) and activated the unit for its 20-minute session cycle time. The second test was designed to determine if the system would increase chlorine (Cl<sub>2</sub>) levels in 3 liters of municipally-supplied water (tap water), the manufacturer recommended water of use. This is an important test as most clients will use municipal tap water with the device. The municipal water contained 45 mg/L of chloride (Cl<sup>-</sup>) and 1 mg/L (ppm) of chlorine (Cl<sub>2</sub>), which not only provide chloride ions (which oxidize to chlorine gas at the anode), but also a baseline of chlorine (Cl<sub>2</sub>) to evaluate whether or not the device increases the chlorine levels substantially.

- **Materials**

- Distilled water: 6 pH, 0 TDS

- Water Temperature: 65~70F/ 18.3~21.1C
- Municipal Water: 9.6 pH, 350 TDS  
Water Volume Size: 3.0 L/ 3000 mL
- Chloride source: Salt (NaCl)
- **Chlorine Concentration Tests Results**
  - Distilled Water (≈ 1000 TDS of salt (NaCl))
    - 20 mins: 5.0 mg/L (ppm) of Cl<sub>2</sub>
  - Municipal water (45 mg/L of chloride (Cl<sup>-</sup>) and 1.0 mg/L (ppm) of chlorine (Cl<sub>2</sub>))
    - 20 mins: 1.0 mg/L (ppm) of Cl<sub>2</sub>

**Summary Report Only.  
Not Full Test Report.**

**Other testing and technical sections are not included out of respect and professional courtesy of the RPC.**

*H<sub>2</sub>Hubb LLC disclaimer: All tests conducted and test results produced by H<sub>2</sub>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 H<sub>2</sub>Hubb LLC business practices and to validate the reasons for our recommendations.*

**Approved by: Tywon Hubbard**

