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H2HUBB Official Test Report

Evaluation Introduction

Our report summarizes our analysis of the H2 Nano V3 Hydrogen Water Bottle offered by the company Hydrogen For Health. H2HUBB classifies this device as a premium 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 10 minutes for confirm its performance. The unit contains a 3.7 V +2200 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: Hydrogen For Health
- Product Name: H2 Nano V3
- Type: High-Concentration H2 Water Device
- PEM/SPE
- Portable hydrogen water generator
- High-PSI bottle
- Serial Number: HWB02024159
- URL Link: https://hydrogen4health.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: 0.210 L or 210 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: 1.5-3.5+ 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 it's 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:

- 10-mins avg mg/L (ppm): ≅ 4.75 mg/L (ppm)

Avg H2 mg Produced in Designated Vol:

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

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

H2HUBB Hydrogen Concentration Assessment

- H2HUBB aimed to conduct a confirmation assessment of the product's hydrogen concentration, in line with our policy outlined in the Recommendation Guidelines and Terms. This decision is based on the fact that Hydrogen For Health has already established accurate hydrogen concentration (mg/L) test results through H2 Analytics, a US-based hydrogen laboratory. According to the H2 Analytics Test report, the H2 Nano V3 hydrogen water bottle achieved 3.44 mg/L (ppm) with its 5-minute cycle and 5.14 mg/L (ppm) with its 10-minute cycle. These results are outstanding for dissolved H2 in a hydrogen water bottle. We consistently aim to align our measurements within a 5-20% range of Gas Chromatography measurements conducted by H2 Analytics, recognizing the inevitable presence of human error in our testing processes. The H2 Nano V3 achieved an H2 concentration of 4.75 mg/L (ppm) in its 10-minute cycle, based on our testing. These results fall within our 5-20% confirmation range, with our results being within 7.5% of H2 Analytics' results. The bottle exceeds our H2HUBB standards for both **H2 Concentration and Daily Dose of H2**.

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:**
  - 2200 mAh (2.2 amps)
- **Total watts:**
  - 8.14 Wh (watts)

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 again during 5-minutes session to initiate a 10-minute session time then shuts off.
- USB-C 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:

- H2 Nano V3 Hydrogen Water Bottle: $249.00 USD
- H2 Hubb discount: TBA
- H2 Hubb recommendation cost: TBA

Overall Opinion

The H2Nano V3 Hydrogen Water Bottle is a well-engineered portable hydrogen water unit. Our evaluation found that the device produced approximately 4.75 mg/L (ppm) of dissolved H2 in 210 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 H2 Nano V3 hydrogen water bottle achieved this.

The hydrogen laboratory, H2 Analytics, tested this bottle and found a dissolved hydrogen concentration of 5.14 mg/L (ppm), equivalent to 1.08 mg of H2 dissolved within the specified volume. These results closely match H2HUBB's findings, with only a 7.5% difference between the two. This variation can be attributed to several factors, including human error, different testing methods (titration vs. GC), and the varying performance of two separate sample bottles. To ensure consistency, H2HUBB aims for a 5-20% discrepancy range with H2 Analytics' results. Our test results for this product fall within this standard.

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 H2Nano V3 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 major concern with any hydrogen product is safety, and hydrogen water bottles are no exception. The Nano V3 stands out as one of the safest hydrogen water bottles on the market, having undergone the most thorough safety evaluations of any hydrogen water bottle we have ever assessed. Not only has the H2 Nano V3 been tested by H2HUBB and H2 Analytics, but it has also been certified to IHSA standards, which include EPA laboratory water quality analyses to ensure that the H2 water from the bottle is safe to drink and contains no heavy metals. Moreover, to our knowledge, this hydrogen water bottle is the only one on the market tested for PFAS or "forever chemicals," showing that the PEM/SPE membrane within the bottle does not leach these substances into the water.

Currently, there is no evidence that hydrogen water bottles release PFAS, according to available test data and the functional characteristics of these bottles. Factors such as membrane thickness, current density, and operational conditions (temperature, pH levels) influence membrane degradation. High-grade PEM Nafion membranes (e.g., Nafion 115, 117), used in premium hydrogen water bottles, are known for their durability and resistance to chemical and mechanical degradation. Additionally, the hydrogen cells in these bottles operate well within safe temperature ranges, and low current density minimizes degradation risks. Maintaining membrane hydration is crucial, but hydrogen water bottles are designed for consistent moisture. Therefore, based on H2HUBB's analysis, the risk of PFAS from premium hydrogen water bottles is low. While assessing factors and risk levels is crucial for determining safety, it does not confirm the absence of harmful substances. Hydrogen For Health has made significant strides to ensure that the H2 Nano V3 does not leach harmful PFAS chemicals into the water. Their thorough testing confirmed our risk analysis, verifying that premium hydrogen water bottles present an exceptionally low risk of releasing PFAS into drinking water. Our comments in this report do not suggest that low-grade hydrogen water bottles are free from PFAS risks; in fact, they indeed pose a higher risk compared to premium hydrogen water bottles. We are very pleased with the safety of this bottle and commend Hydrogen For Health for going above and beyond to ensure its safety.

Overall, the H2Nano V3 hydrogen water bottle is aesthetically appealing, engineered with high-quality materials, and effectively dissolves a therapeutic concentration of hydrogen gas into its 210 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 H2Nano V3 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