



H2 Analytics  
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## Laboratory Report

### Introduction

This report summarizes the analysis of the Echo H2 Machine™ hydrogen water machine manufactured by Echo Technologies LLC, Pleasant Grove, UT, USA. The product was tested for dissolved hydrogen concentration.

### Product Description

Echo H2 Machine™ Flow-Through Hydrogen Water Machine, Model # - Echo H2 Machine™

Product was received for testing 4/28/2021

### Methods

#### Dissolved hydrogen concentration (H<sub>2</sub>)

Test water: ASTM Type I ultrapure ChemWorld, Salt Lake City, UT, USA; temperature: 25°C ± 1.5° ; ec: 0 us/cm; pH: 6.4  
Laboratory elevation: 864 meters (0.91 atm); all measurements adjusted to SATP

Test Equipment: SRI 8610C gas chromatograph, Torrance, CA USA  
Column: Hayesep-D 6M packed column temp: 80°C  
Detector: Tungsten-Rhenium TCD (5000 mvsec max)  
Carrier gas: Nitrogen (99.999%) @20 PSI, 20 mL/min  
Calibration: Performed on day of testing using third-party calibration gas

FloJet BW5000 water dispenser system w/ 5 gal bottle reservoir, Xylem Inc., Irvine, CA, USA

GC Test Method: Static headspace analysis

Test Configuration: The Flojet reservoir was filled with ultrapure water and the Flojet siphon tube was connected to the reservoir. The Flojet output tube (1/4" pvc) was connected to the H2 machine's water input port. The H2 machine's top spout was positioned above a sink to permit collection of output water. Both the H2 machine and Flojet were connected to 110 vac power.

On the day of testing, the GC was permitted to warm up for two hours and then calibrated. For each test, the unit under test was allowed to run for 1 minute to ensure that only fresh hydrogen water was flowing from the output hose. After one minute, a 500 mL beaker was placed under the water stream and 500 mL of sample water was collected. A water sample was immediately taken from a depth of 20 mm using a gas-tight syringe. The sample was injected into the headspace vial and agitated on an equilibrator device for five minutes to permit the dissolved H<sub>2</sub> to equilibrate with the headspace. After equilibration, the headspace was then sampled using a gas-tight syringe and injected into the gas chromatograph for analysis. Three tests were conducted, results recorded, and the mean and standard deviation calculated.

### Results

Dissolved H<sub>2</sub>: Mean - 1.59 mg/L (ppm) SD - 0.07

Approved By:

Randy Sharpe, Director of Testing



Report Date: 6/10/2021