



## Laboratory Report

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Report # H2A-240603-6

### Introduction

This report summarizes the analysis of the Echo H2 Pitcher manufactured by Echo Technologies, LLC, Pleasant Grove, UT, USA. The product was tested for dissolved hydrogen concentration on the 10- and 20-minute cycles.

### Product Description

Echo<sup>®</sup> H2 Pitcher; Model # - Echo<sup>®</sup> H2 Pitcher; Serial # - KUSG00B41138

The product was received for testing on 5/13/2024

### 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: 6.2  
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: 60°; Detector: Tungsten-Rhenium TCD  
Carrier gas: N<sub>2</sub>, 20 PSI, 20 mL/min; Calibration: Performed on the day of testing using third-party calibration gas  
Centrifuge: H2 Analytics, 2400 RPM  
Water Pump: FloJet 5000

Test Method: Static headspace analysis

Prior to testing, the unit's internal battery was charged overnight using the supplied wall charger, and the membrane was wetted with warm water (60°C). On the day of testing, the GC was permitted to warm up for two hours and then calibrated. For each test, the pitcher was filled with ~ 1.5 L of water, and the lid was replaced. After completion of the desired cycle time (10 min or 20 min), the lid was removed and a 1000 uL sample was immediately taken from the pitcher using a gas-tight syringe. The sample was immediately injected into the headspace vial and placed on a centrifuge for three minutes to permit the dissolved H<sub>2</sub> to equilibrate with the headspace. After equilibration, a 1000 uL sample of the headspace was taken using a gas-tight syringe and injected into the gas chromatograph for analysis. Three tests were conducted for each cycle time, the results recorded, and the mean and standard deviations calculated. Based on the dissolved H<sub>2</sub> concentration and the water volume, the dose of H<sub>2</sub> delivered when drinking one liter was calculated and reported in milligrams.

### Results

Short cycle (10 min): Dissolved H<sub>2</sub>: Mean - 1.03 mg/L (ppm); SD - 0.02; Dose: 1.03 mg

Long cycle (20 min): Dissolved H<sub>2</sub>: Mean - 1.40 mg/L (ppm); SD - 0.06; Dose: 1.40 mg



Approved By:  Randy Sharpe, Director of Testing

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