



Hydrogen Water Testing & Certification

## Description of the H2 Analytics IHSA Testing and Certification Program

### (I) Initial Inquiry

**a)** The first step in the H2 Analytics IHSA Certification process is to contact us to schedule an interview (preferably by phone or video conference). In order for us to determine the product's eligibility and the specific testing protocol, it is important that we talk with a representative who is familiar with the technical aspects of the product. For each product you wish to certify, you will be asked to provide the product name, model number, and other identifiers as they appear in your marketing. You should also be prepared to provide some technical information about the product such as amperage, cycle times, water flow rates, and other specifications that may apply to the product. If products that are "essentially the same" in design, function and other specifications have been issued different model numbers (e.g. because they are offered in different colors), we can include these model numbers on the Certificate of Compliance. During this interview, we can also answer any questions you may have about the certification process.

**b)** During the interview we will also request links to your website and samples of your marketing materials. This will permit us to do a preliminary review to determine whether or not any illegal, deceptive, or pseudoscientific claims are used to promote the product. While a more comprehensive review will be done during the certification process, this preliminary review will help us to resolve, as early in the process as possible, any marketing issues that may exist.

**c)** H2 Analytics offers three different options for those wishing to certify their product:

1) Manufacturers, distributors, and retailers can certify their product and, upon successful completion of testing, may purchase a formal Certificate of Compliance and Seal.

2) Manufacturers who offer private-label products can certify their product but forego purchasing a formal Certificate of Compliance and Seal, and instead receive a Declaration of Product Compliance. This document can then be shown to their private-label clients as proof that their product is eligible for a Certificate of Compliance and Seal without the need to submit their private-label products for testing.

3) Distributors and retailers may certify any private-label product verified to be the same as a manufacturer's product already certified by H2 Analytics by sharing the manufacturer's certification. Private-label clients must pay the fees associated with the Certificate of Compliance and Seal, which will be significantly less than the cost of a standalone certification.

### (II) Eligibility

**a)** The applicant must be requesting certification for a product for which IHSA standards have been established. At this time, IHSA has established performance standards only for products that produce drinking water containing dissolved hydrogen gas.

**b)** The applicant must be requesting certification for a product that is either manufactured, distributed, or sold by the applicant, and must comply with the following conditions:

1. Manufacturers (OEM):

Manufacturers may request certification for any product they manufacture, distribute (wholesale), or sell (retail).

2. Distributors and Retailers:

Distributors or retail sellers may request certification for any product they distribute or sell, but the applicant may not request certification for any product that does not contain the applicant's own name/brand/model number without permission from the brand holder.

3. All applicants:

The product for which certification is being requested must have a unique name, brand or model number that distinguishes it from products manufactured, distributed, or sold by others that may be, or appear to be, the same.

**c)** In order to avoid unnecessary costs, we will verify that your product does not utilize a design that we have determined will not be able to pass our testing protocols because of inherent design limitations (e.g. alkaline electrolyzer). If we determine this to be the case, we will advise you not to pursue certification testing.

**d)** The product must be marketed or market-ready at the time of certification. Engineering prototypes or beta-test units are not eligible for certification testing.

**e)** Accessories included with your product (e.g. inhalation adapters) that do not have specific IHSA-testing protocols will not be tested for IHSA compliance.

### (III) Cost Quote

**a)** After reviewing the technical requirements, a quote will be sent within three business days. Quotes will specify the costs associated with testing as well as the cost of obtaining the certificate and any annual renewal fees. If applicable, the annual renewal payment will be due on the anniversary of the certification.

**b)** After receiving the quote, please feel free to contact us with any follow-up questions you may have. If the quote is acceptable and you wish to proceed with the certification testing, contact us. Please note that, before testing can begin, payment for the testing portion of the certification as specified in the quote must be made.

c) If a product(s) fails to meet minimum IHSA performance standards, and no retest is desired, you will not be charged any costs associated with obtaining the certification seal or any renewal fee as specified in the original quote.

#### **(IV) Certification Agreement**

a) Once you have decided to proceed with the certification testing, an H2 Analytics IHSA Product Certification Agreement will be sent to you. This legally binding agreement lists the products to be tested, and the responsibilities for all parties covered by the agreement, and must be signed by an authorized agent of your company. After we have received the signed agreement, payment for testing, and the product sample(s), we will schedule the testing and inform you of the estimated completion date.

#### **(V) Product Samples and Performance Testing**

a) You must agree to send a sample of your product(s) to H2 Analytics; the quantity of product required to perform the testing will be stated on the testing quote. If you require us to return the product after completion of testing, you must agree to pay applicable shipping costs. The product must be in new, factory-sealed condition, must include identifiable model/serial/lot numbers, and must be the same product offered for sale to the general public. If the product is not a pitcher or flow-through device (e.g. tablets, prepackaged water, or powders), we will need enough product to perform multiple tests, typically at least 24 servings depending on the type and number of tests. Please note that testing cannot be scheduled until the product samples have been received. Once scheduled, the time required to perform the testing, data analysis & reporting will vary depending on the type of product and third-party laboratory scheduling, but can normally be completed within three to four weeks.

b) The H<sub>2</sub> concentration for all products will be measured using IHSA-approved gas chromatography (GC) and a calibration and testing methodology appropriate for the product being tested.

c) Except as noted in paragraph (V) g below, tests will be conducted using ASTM Type 1 deionized ultrapure water (conductivity <0.056  $\mu\text{Scm}^{-1}$ ) to ensure that the product can produce the minimum concentration of dissolved H<sub>2</sub> using any source water, regardless of the dissolved mineral content or electrical conductivity (TDS/EC). This requirement can be a problem for some categories of electric hydrogen water devices (e.g. water ionizers) that may require the presence of dissolved minerals in the source water to provide adequate water conductivity for electrolysis and H<sub>2</sub> gas production to occur.

d) For all products (except prepackaged beverages), the hydrogen water will be prepared according to the manufacturer's recommended guidelines. The product must demonstrate the ability to produce at least one liter of hydrogen water whose concentration meets or exceeds the IHSA dissolved hydrogen concentration standard of 0.5 mg/L while limiting the rise in pH to 1.5 units above the starting pH (see para. (V) g below). For packaged specialty hydrogen water products, the dissolved hydrogen concentration must be at least 1.0 mg/L.

e) The drinking water will be analyzed to ensure that the product does not add contaminants (such as chlorine or heavy metals). H2 Analytics contracts with a third-party EPA-certified testing laboratory to perform the water testing. The water testing parameters include testing for contaminants as specified by the US EPA in accordance with the Safe Drinking Water Act (SDWA), but may also include testing for additional contaminants not necessarily included in a standard EPA-approved drinking water test. The complete list of tested contaminants is available upon request. It is important to remember that the water-quality test ONLY checks for contaminants that might be added to the water *by the product*, and cannot guarantee that the end user's source water will not contain contaminants. If the product has no filtration system to remove or reduce them, then harmful contaminants in the source water may also be present in the drinking water produced by the product. Please note that, because IHSA does not currently specify performance standards or test protocols for integrated water filtration systems, the certification testing does not evaluate or certify their performance.

f) Prepackaged hydrogen water products will undergo a shelf-life test to determine the stability of the dissolved gas and the integrity of the container. The shelf-life test verifies that the product can maintain the minimum hydrogen concentration of 0.5 mg/L (1.0 mg/L for specialty hydrogen beverages) for the length of time specified by the manufacturer (or for at least 6 months if not specified). If a product passes all other tests, the certification can be issued while awaiting the results of the shelf-life testing. A product that does not pass the shelf-life test may have its certification revoked.

g) The final pH of the water will be measured to ensure that it is at or below the specified upper limit. Because the pH of some source water can be as high as 8.0, and the upper limit specified by IHSA for drinking water is 9.5, the product cannot raise the pH of the source water used for testing by more than 1.5 pH units. For certain electrolytic products (e.g. dual-cell ionizers), an additional test using high-TDS water (instead of zero-tds deionized water) may also be required to verify that the dissolved H<sub>2</sub> and pH continue to meet the applicable standards.

h) The company's website, marketing materials, and product labeling and packaging will be reviewed to ensure that no illegal, deceptive, or pseudo-scientific claims are made that could harm the hydrogen industry as a whole. Questionable marketing claims may be referred to IHSA for further investigation.

i) Except for water quality, there are currently no IHSA standards for testing other safety parameters of the product. Therefore, the H2 Analytics IHSA Certification does not verify the safety of the electrical system, accessories that may be included, or other components.

j) Because there are currently no IHSA performance standards for inhaled hydrogen gas, we cannot certify hydrogen inhalation devices or any hydrogen inhalation accessories included with any hydrogen water device. If requested, a separate laboratory analysis to verify the gas flow rate can be performed for an additional charge.

#### **(VI) Evaluation and Notification of Test Results**

a) If the product meets or exceeds all IHSA performance standards and a Certificate of Compliance & Certification Seal have been purchased:

1) A letter will be sent indicating that the product has passed all applicable tests.

2) The product will be issued a Certificate of Compliance with a unique registration number (N/A to manufacturer's not purchasing a certificate).

- 3) The company name, product name, model number, and registration number will be added to our website and our database of approved products.
  - 4) The company name, product name, and model number will be sent to IHSA to be added to their database of approved products.
  - 5) A graphic image of the H<sub>2</sub> Analytics certification seal (in multiple formats) will be emailed to you. You may choose to create individual adhesive labels containing the seal that can be applied to each product, or embed the seal into your existing product label, packaging, marketing brochures, and website (you are responsible for creating any custom labels).
- b)** If the product meets or exceeds all IHSA performance standards and a Certificate of Compliance & Certification Seal have not been purchased:
- 1) A letter will be sent indicating that the product has passed all applicable tests.
  - 2) A signed Declaration of Product Compliance will be sent showing that the product is eligible to receive a Certificate of Compliance and Certification Seal.
- c)** If the product fails to meet the minimum IHSA performance requirements:
- 1) You will be sent a letter explaining which IHSA performance parameter(s) were not met. H2 Analytics may, but is not obligated to recommend any corrective actions that could help the product meet the required performance standard(s).
  - 2) If you wish to appeal the test results, H2 Analytics agrees to review the test standards and protocols used in the testing with you, discuss any portion of the testing that you feel is inaccurate, incorrect, or not applicable to your product, and refer the appeal to an IHSA representative if appropriate.
  - 3) If you wish to perform a retest, additional charges may be incurred. The amount of the additional charges will be dependent on which portion(s) of the test failed.
  - 4) If no retest is desired, you will not be charged any of the costs associated with obtaining the certification seal as specified in the original quote; costs associated with testing are not refundable.

#### **(VII) Verification and Limitations on Use of Certification**

- a)** Consumers will be able to verify a product's certification status by viewing our certified products webpage ([www.h2-analytics.com/ihsa-certified-products](http://www.h2-analytics.com/ihsa-certified-products)), by contacting H2 Analytics using our contact page (<https://www.h2-analytics.com/contact>), or by contacting IHSA through their website (<http://www.intlhsa.org/contact/>).
- b)** Certifications will be valid for 3 years from the date of issuance.
- c)** The IHSA logo will appear on the Certificate of Compliance to validate IHSA's endorsement of the certification, but the IHSA logo may not be used in any other way, including product packaging, instruction manuals, marketing materials, videos, websites, or social media. You are free to use the Certificate of Compliance and Certification Seal for any sales and marketing purposes consistent with the terms as stated in the IHSA Product Certification Agreement.
- d)** The H2 Analytics IHSA Certification confirms that the tested unit complies only with the performance standards set forth by IHSA. Other evaluations about the product such as comparable market value or aesthetics (size, color, durability, functionality, etc.) not directly related to the stated performance standards will not be made.
- e)** Although specific in-house testing protocols are determined by H2 Analytics, the H<sub>2</sub>-measuring method (gas chromatography) and applicable performance standards for H<sub>2</sub> products are established by the International Hydrogen Standards Association (IHSA) and are subject to change without notice. More information on IHSA testing and performance standards is available at [www.intlhsa.org](http://www.intlhsa.org).

#### **(VIII) Confidentiality**

- a)** H2 Analytics considers all correspondence, emails, phone conversations, video sessions, client lists, and test results to be CONFIDENTIAL, and will not sell, transfer, or release this information to any outside party unless specifically requested to do so in writing by an authorized agent of your company.
- b)** If a product successfully meets all IHSA performance standards and is issued a Certificate of Compliance, specific information related to the product and testing including company name & address, product name, product image, model number, certification registration number, certification status, and expiration date will be available to the public on our website, and will also be sent to IHSA for inclusion in their online certification database.