



Overview of the H2 Analytics IHSA Testing and Certification Process

(1) Initial Inquiry: The first step in the certification process is to contact us to schedule an interview (preferably by phone or video conference). In order for us to determine the specific testing protocol and to produce an accurate cost estimate for product testing, we must talk with a representative who is familiar with its technical aspects. During this conversation, we can also answer any questions you may have about the certification process. Your representative should be prepared to provide some technical information about the product such as amperage, cycle times, water volumes, flow rates, and other general specifications that may apply to the product under consideration.

(2) Cost Estimate: After reviewing the technical requirements, a cost estimate will be sent within 72 hours. After receiving the cost estimate, please feel free to contact us with any follow-up questions you may have. If the cost estimate is acceptable and you wish to proceed with the certification testing, please contact us. Please note that estimates expire within 6 months of the issue date. Before testing can begin, payment in full must be completed.

(3) Certification Agreement: Once you have decided to proceed with the certification testing, an IHSA Product Certification Agreement will be sent to you that must be signed by an authorized agent of the company. This agreement will include contact information and will specify the product(s) being submitted for testing. After we have received the signed agreement, payment for testing, and product samples, we will schedule the testing and inform you of the estimated completion date.

(4) Product Samples and Performance Testing:

a). The customer must agree to send a non-returnable sample of their device/product to H2 Analytics. The product must be in new, factory-sealed condition, must have easily identifiable model/serial/lot numbers, and must be the same device offered for sale to the general public. Engineering prototypes are not eligible for IHSA certification. If the product is not a machine 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 two to three weeks.

b). Products will be certified for minimum H₂ concentration using IHSA-approved gas chromatography (GC) and a calibration and testing methodology appropriate for the product being tested (typically static headspace analysis).

c). For all products (not including prepackaged waters), the hydrogen water will be prepared following the manufacturer's recommended protocol, including parameters such as break-in period, flow rate, pressure, and cycle time. 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 0.5mg/L while maintaining a pH at or below 9.5.

d). The drinking water will be analyzed to ensure that the device 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. Their report will be included with the final report from H2 Analytics. The water testing parameters are specified by IHSA, an international organization. Therefore, the testing may also include some additional contaminants considered harmful by the US EPA or other US regulatory agencies. The complete list of contaminants tested for is available upon request. Please note that, at this time, the IHSA water test does not evaluate the effectiveness of built-in water filtration systems at reducing the level of harmful/unwanted contaminants in the source water.

e). 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 a minimum hydrogen concentration of 0.5 mg/L for the length of time specified by the manufacturer (or for at least 6 months if not specified). While the certification can be issued while awaiting the shelf-life testing results, a product that does not pass the shelf-life test may have its certification revoked.

f). The pH of the water will be measured to ensure that it is within the specified range. Because the pH of some source waters can be as high as 8.0, and the upper limit for drinking water is 9.5, the device is not permitted to elevate the pH of the source water used for testing by more than 1.5 units.

g). Because there are currently no IHSA standards for electrical or other safety testing of hydrogen water devices, the IHSA Certification does not verify the safety of electrical or other components contained within the product. If the device has been previously certified by a recognized testing agency (UL, CE, CSA, WQA, NSF, etc.), we can include these certifications in our final report (customer may need to supply additional supporting documentation).

h). Tests will be conducted using lab-certified, double-deionized water to ensure that the product will produce the minimum acceptable levels of dissolved H₂ using any source water, regardless of the dissolved mineral content (EC/TDS). This requirement can be an issue for some categories of electric hydrogen water devices (e.g. water ionizers) that may require a minimum level of dissolved minerals in the source water to provide adequate water conductivity for electrolysis to occur.

i). The company's marketing will be reviewed to ensure that no pseudo-scientific claims exist which could harm the hydrogen industry as a whole. Questionable claims may be referred to an IHSA representative for further investigation.

j). After the completion of all testing, a final report will be sent summarizing the results. If the customer's product(s) passes all tests by meeting all IHSA performance standards, the product will be issued a certificate of compliance with a unique registration number, and the product name and model number will be added to our database of approved products. The customer will be sent a copy of the compliance certificate and a graphic image (in digital form) of the H₂ Analytics certification seal that includes their unique registration number. The customer may choose to create adhesive labels containing the seal which could be applied to each product, or embed the seal into their existing labels, marketing brochures and website (customer is responsible for creating any custom labels). Consumers can verify a product's certification status either by contacting H₂ Analytics through our contact page or by visiting the IHSA website, where a searchable online database will be located. The IHSA logo will appear on our report to validate IHSA's endorsement of the certification, but the IHSA logo may not appear on the customer's products, marketing, or websites. H₂ Analytics considers these results to be confidential and will not release them to any third party without permission. The customer is free to use the results for any sales and marketing purposes consistent with the terms of the IHSA Product Certification Agreement.

k). If a product fails to meet the minimum IHSA performance requirements, the final report will include an explanation indicating which performance parameter(s) were not met. We agree to review the test standards and protocols used in the testing with the customer, discuss any portion of the testing that the customer feels is incorrect or not applicable to their product, and refer the details of the appeal to an IHSA representative if appropriate.

l). Certifications will be valid for 5 years from the date of issuance.

m). The IHSA Certification confirms that the tested unit complies only with the performance standards set forth by IHSA. Subjective evaluations about the product such as perceived value or aesthetics (size, color, button placement, functionality, etc.) not directly related to the performance standards in question will not be made.

n.) Although specific in-house testing protocols and are determined by H₂ Analytics, the H₂-measuring method (gas chromatography) and applicable performance standards for H₂ 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.intlhasa.org.

(5) Confidentiality:

a). H₂ Analytics considers all correspondence, emails, phone conversations, video sessions, client lists, and test reports CONFIDENTIAL, and will not sell this information or release it unless specifically requested to do so in writing by an authorized agent of the company. If a product successfully meets all IHSA performance standards, information related to the testing such as company name, product model number, certification status, and expiration date will be sent to IHSA for inclusion in their online certification database.