

Hydrogen Quality Centre

Hydrogen (H_2) fuel, like its fossil fuel counterparts, requires comprehensive analysis to ensure that it conforms to industry standards to avoid degrading or damaging the devices it powers. Certifying H_2 fuel against international specifications encourages consumer confidence in this emerging clean fuel. There is a growing need to provide certification for production, storage, transport, and end use of H_2 fuel and gas blends.

InnoTech Alberta's Hydrogen Quality Centre is intended to be a full-service lab for delivering and innovating on the process of H_2 fuel certification in Canada, and worldwide.

HYDROGEN QUALITY CENTRE SERVICES

- Hydrogen fuel analysis
- Sample collection from points of delivery
- Developing the next iteration of hydrogen testing equipment
- Hydrogen gas and gas blend standardization
- Specification testing to ensure delivered hydrogen meets industry needs

INNOVATION AND CERTIFICATION

- Developing fast and efficient certification of Type I fuels
- Using leading edge sensors and spectrometric techniques
- Joining with industry partners to develop new production routes to fuel cell grade hydrogen



Constituent	Specification for Type I, Grade D
H₂ Fuel Index	99.97%
Total Non-H ₂ Gases	300 ppm
Maximum concentration of individual contaminants	
Water (H ₂ O)	5 ppm
Total Hydrocarbons (THC, C1 equiv.)	2 ppm
Methane (CH ₄)	100 ppm
Oxygen (O ₂)	5 ppm
Helium (He)	300 ppm
Nitrogen (N ₂)	300 ppm
Argon (Ar)	300 ppm
Carbon Dioxide (CO ₂)	2 ppm
Carbon Monoxide (CO)	0.2 ppm
Total Sulfurs (S1 equiv.)	0.004 ppm
Formaldehyde (HCHO)	0.2 ppm
Formic Acid (HCOOH)	0.2 ppm
Ammonia (NH ₃)	0.1 ppm
Halogenates	0.05 ppm

PUT OUR EXPERTISE TO WORK FOR YOU:

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InnoTech Alberta, a subsidiary of Alberta Innovates, is a leading research and technology organization serving the needs of industry, entrepreneurs and the public sector. Our leading-edge expertise and industrial-scale research and demonstration facilities accelerate and de-risk technology development and deployment for our clients with a focus on industrial solutions and commercial applications.

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SPECIFICATION TESTING

- Accredited lab for full specification analysis of gas blends
- Evaluate hydrogen products and fuels for conformance to ISO 14687 and SAE J2719 specifications
- Analyzing fuel cell grade hydrogen for conformance to Grade D or E specifications
- Ensuring Canada can adapt to the changing regulatory ecosystem surrounding $\rm H_2$

ADVANCED ANALYSIS

- All contaminants listed under ISO 14687 can be analyzed
- Low level detection of water, hydrocarbons, inert gases, sulfur compounds, formaldehyde, formic acid, ammonia, and halogenates
- Capability to develop and validate analysis for most gas phase impurities, over and above those required under ISO or SAE standards

RESEARCH AND DEVELOPMENT

- Customize and develop novel methods and instruments to meet specific needs
- Work with clients to develop analytical testing plans to solve specific problems or support research activities
- Evaluate new products and technologies



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