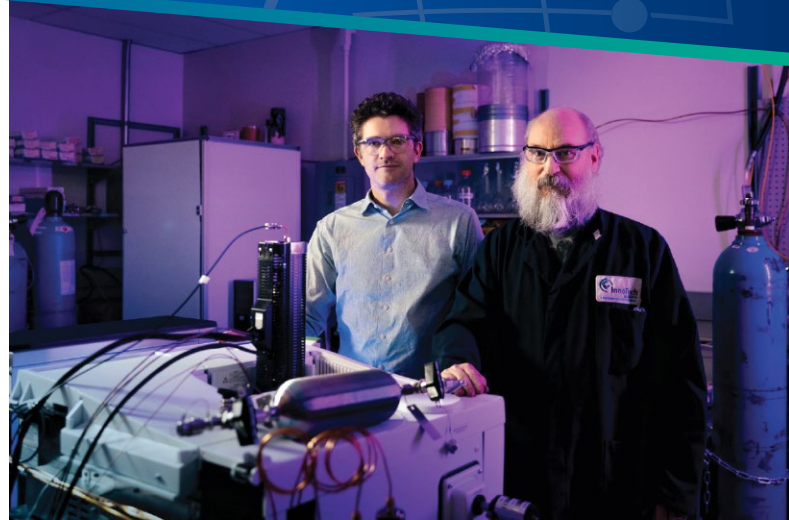


Hydrogen (H₂) fuel, like its fossil fuel counterparts, requires comprehensive analysis to ensure that it conforms to industry standards to avoid degrading or damaging the devices it powers. Certifying H₂ fuel against international specifications encourages consumer confidence in this emerging clean fuel. There is a growing need to provide certification for production, storage, transport, and end use of H₂ 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 H₂ 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

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.

Visit us at: InnoTechAlberta.ca

<i>Constituent</i>	<i>Specification for Type I, Grade D</i>
H ₂ Fuel Index	99.97%
Total Non-H ₂ gases	300 ppm
<i>Maximum concentration of individual contaminants</i>	
Total Hydrocarbons (THC, C1 equiv.)	5 ppm
Methane	2 ppm
O ₂	100 ppm
Helium (He)	5 ppm
Nitrogen (N ₂)	300 ppm
Argon (Ar)	300 ppm
CO ₂	2 ppm
Carbon Monoxide (CO)	0.2 ppm
Total Sulfers (S1 equiv.)	0.004 ppm
Formaldehyde	0.2 ppm
Formic Acid	0.2 ppm
Ammonia (NH ₃)	0.1 ppm
Halogenates	0.05 ppm

PUT OUR EXPERTISE TO WORK FOR YOU:

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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 H₂

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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