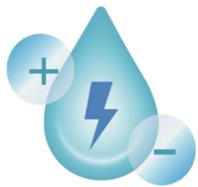


Water electrolysis cell evaluation technology accelerates development

Supporting the evolution of hydrogen production with evaluation technology

We support our customers in resolving their technical issues through performance and durability evaluation of water electrolysis

Circumstance



- Water electrolysis cell evaluation is extremely important for identifying technical issues.
- Evaluation results are necessary for design, material development, and system optimization.
- Evaluation tests are essential for understanding phenomena under conditions similar to the real system environment and obtaining design guidelines.

Capable of handling pressure tests and long-term durability tests that require advanced equipment and operational know-how

Development is underway on high-pressure water electrolysis equipment that directly produces usable "hydrogen" without the need for compression, and KRI has established an evaluation system that can handle pressures of less than 1 MPa.

PEM type water electrolysis

<Challenges of High-Pressure Water Electrolysis>

- Heavy load on cells and materials
- Difficulty in controlling differential pressure operation

Unlike atmospheric pressure water electrolysis, various design changes are required, so evaluation under pressurized and high-pressure conditions is important.

~An example of evaluation and testing conditions for a real system~

- Supports a wide range of capacities, from small cells to 10kW-class stacks
- Pressure tests up to 0.99MPaG verify conditions close to those of a real-world environment
- Continuous electrolysis, start/stop, and complex load/potential change protocol testing

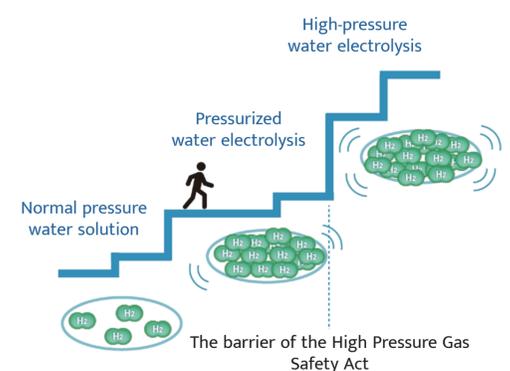
AEM type water electrolysis

<Challenges for AEM-type water electrolysis>

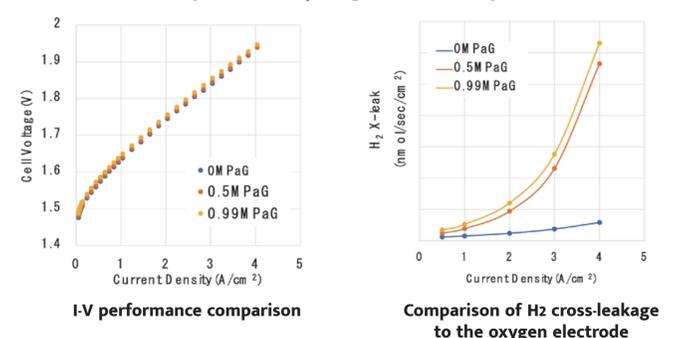
- Alkaline resistance of cells and materials
- Improved performance in low-alkali environments

~Examples of testing and analysis aimed at establishing evaluation~

- Proven track record in long-term continuous testing, with evaluation and analysis aimed at long-term stable operation.
- Pressure testing is possible using newly developed alkali resistance evaluation equipment.
- Proven track record with in-house cells up to 40W capacity, with the ability to scale up.



PEM-type water electrolysis: Evaluation example under hydrogen electrode pressure conditions



AEM-type water electrolysis: Durability performance evaluation example

