

INNOVATIVE STACK COMPONENTS FOR HIGH-PRESSURE ALKALINE ELECTROLYSERS



Scalable stack component designs for alkaline electrolyzers operating at up to 30 bar, combining improved electrical contact, low ohmic resistance and cost-effective manufacturing

Description

- Innovative stack component designs for alkaline electrolyzers targeting operation at pressures of up to 30 bar
- Low-thickness end plates (<20 mm) reinforced with either welded or non-welded frames
- Improved electrical contact and reduced ohmic resistance for more stable and reproducible stack performance
- Scalable component design supporting the transition towards larger stack dimensions
- Cost-effective manufacturing approach suitable for laboratory and small-scale industrial test stacks

Maturity of the Result

TRL 6 – Technology demonstrated in a relevant environment

Result Availability

Available now

Owner

Materials Mates Italia

Impact

- 01 >> More efficient stack operation through improved electrical contact and lower ohmic resistance.
- 02 >> More consistent and reliable stack performance, supporting reproducible operation under pressure.
- 03 >> Lower manufacturing costs through simplified and scalable component design.
- 04 >> Easier scale-up towards larger alkaline electrolyser stack dimensions.
- 05 >> Support for more competitive high-pressure alkaline electrolysis systems by combining performance improvements with manufacturability



Innovative high-pressure stack components within the PEACE stack

Target Users

- Electrolyser manufacturers: scalable stack component designs supporting cost-effective manufacturing and larger stack dimensions
- Hydrogen technology companies: improved stack performance and high-pressure operation for advanced alkaline electrolysis systems
- Industrial users: more reliable and competitive high-pressure alkaline electrolyzers for hydrogen production
- Research and development organisations: validated component concepts for further testing, optimisation and scale-up
- System developers and integrators: stack components suitable for integration into larger high-pressure hydrogen production systems

Collaboration opportunities

- Industrial testing and validation under different operating conditions
- Stack design and scale-up towards larger dimensions
- Manufacturing partnerships for industrialisation
- Joint development of larger-scale stack units
- Commercialisation opportunities for high-pressure alkaline electrolysis

More information

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