TOPPAN

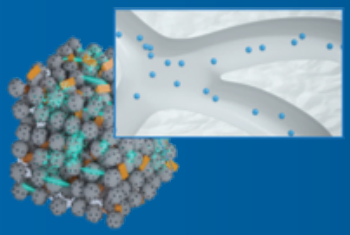
TOPPAN CCM/MEA

CCM:Catalyst Coated Membrane
MEA:Membrane Electrode Assembly

TOPPAN - Established in 1900, is a Japan-based leader leveraging advanced printing technologies across Electronics, Living & Industry, and Information & Communication sectors.
Drawing on over 20 years of R&D, we deliver CCMs and MEAs optimized for diverse requirements using proprietary material and coating expertise. These components power the entire hydrogen value chain—production, storage/transport, and utilization—accelerating global carbon neutrality.

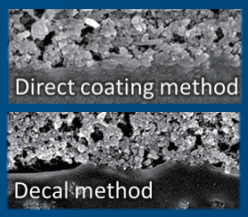
Proprietary Additives

Optimize the catalyst layer's porous structure and enhance mass transfer.



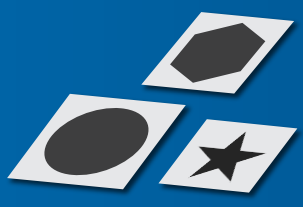
Direct Coating Method

Substantially reduces contact resistance for enhanced efficiency and durability.



Customizable Active Area

Precision coating beyond standard rectangular formats to fit any stack design.



Manufacturing

Current: 60,000 sheet/year
(600 x 800mm²)

Under development:
Large CCM production system up to 1.5 x 2.5 m²

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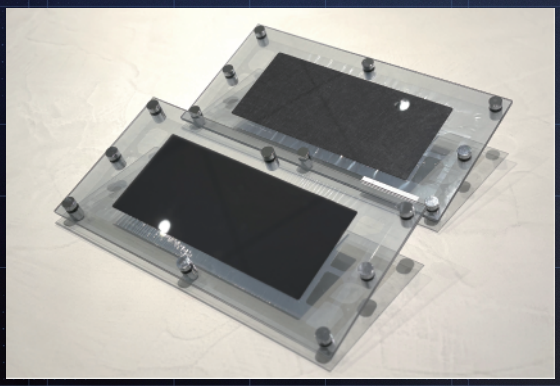
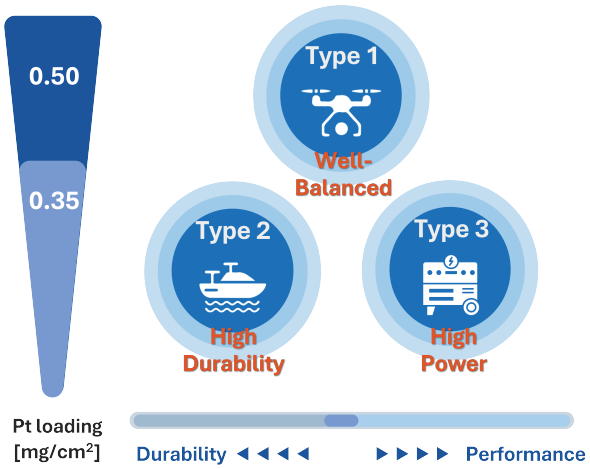
CCM/MEA for Fuel Cell



TOPPAN offer ;

- **3 lineups** with different Pt loading and performance styles
- High power efficiency MEA for **Air-cooled and Open-Cathode Fuel Cell applications**
- 3-Layer CCM, 5-Layer MEA, & 7-Layer MEA (+GDL)
- Custom shapes available to meet your needs

3 Types to match your needs



Optimal for various applications

Forklift

Stationary Power

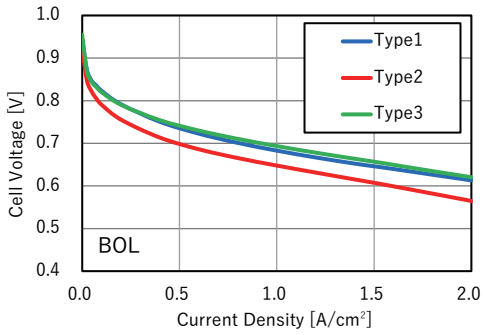
AGV/AMR

Drone

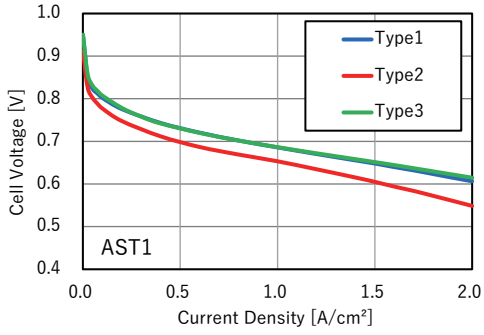
Technical data

-BoL Performance,
-AST1(Catalyst durability),
-AST2(Carbon Support Durability)

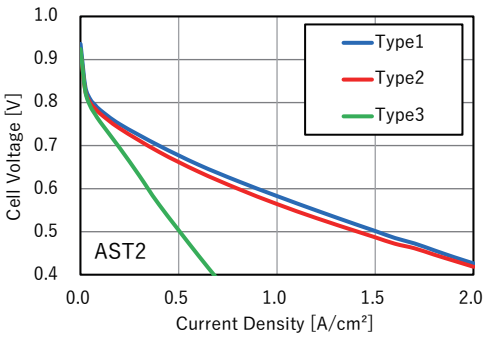
BoL Performance



AST1 (Catalyst durability)



AST2 (Carbon Support Durability)



Specifications and values are subject to change without notice. All data are representative values under specific test conditions and do not guarantee actual product performance.

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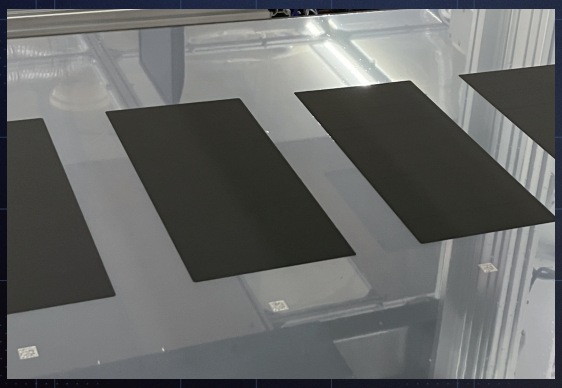
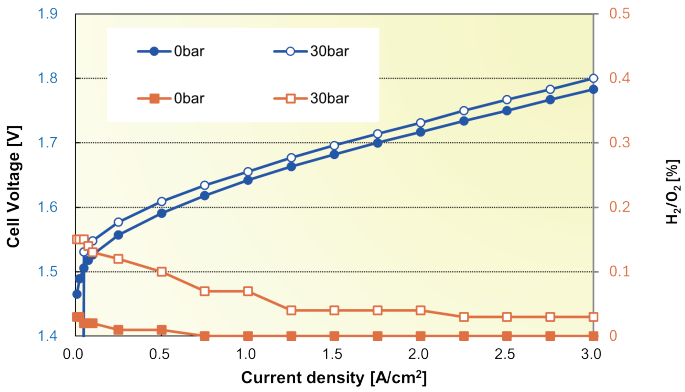
Next-Gen CCM for Water Electrolysis



- Initial performance surpasses the **DOE target for 2026 (1.8V @ 3.0A/cm²)** with low iridium loading
- Low hydrogen crossover: **H2/O2 < 0.10% (@ >0.5A/cm²)**
- **Proprietary additives suppress performance loss after a harsh operation equivalent to 1,920 hours of renewable energy source.**
- Custom shapes available to meet your needs

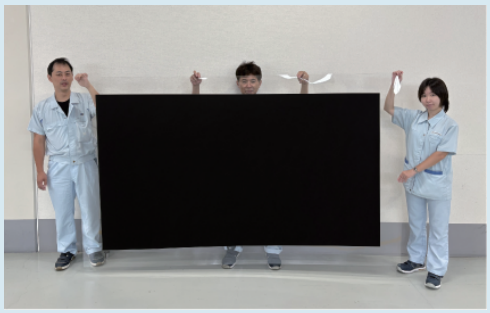
Initial performance data



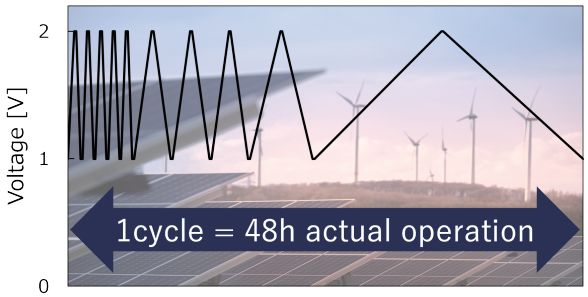
Ca catalyst: 0.3mg-Pt/cm²
An catalyst: 0.3mg-Ir/cm²
Membrane: <100μm

3m² class production unit - under establishment

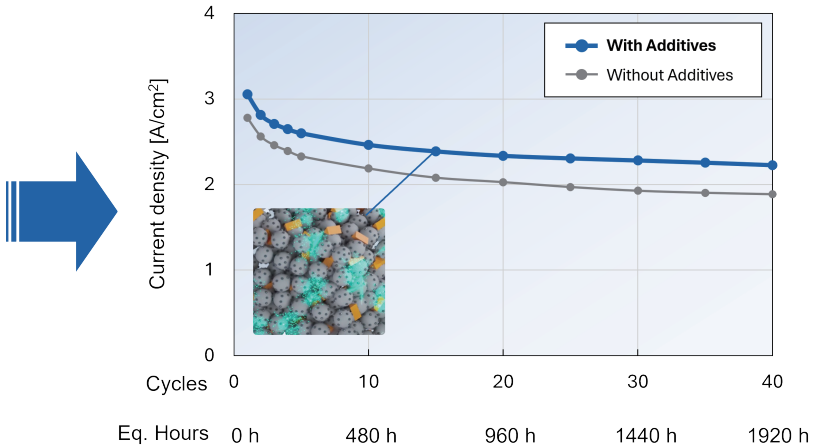
- Currently verifying the prototype
- Maximum size: 1.5 x 2.5 m²



Accelerated durability test



Tested with original accelerated durability test protocols that simulate the voltage fluctuations of renewable energy



Reference: Journal of Power Sources 564 (2023) 232826

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If you are interested in our MEA, visit our website for more details and feel free to contact us!

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