

IC154: A Perfluorosulfonic Acid (PFSA) Ionomer Dispersion for Fuel Cells and Hydrogen Electrolysis

Features

- Ionomer dispersion in aqueous media (alcohol/water)
- High power generation enabled by high IEC (Ion Exchange Capacity)
- Long-term stability in harsh fuel cell operating environments

Basic Properties of IC154

Property	Unit	Value or Remark
Ion Exchange Capacity (IEC, H ⁺ polymer basis)	meq/g	1.25 ± 0.1
Equivalent Weight (EW, H ⁺ polymer basis)	g/eq	800 median (741~870)
Viscosity (at 76 sec ⁻¹ shear rate)	mPa·s	180 ± 100
Colour (APHA/Hazen scale)	-	<100 (Colourless, Transparent)

Composition of IC154

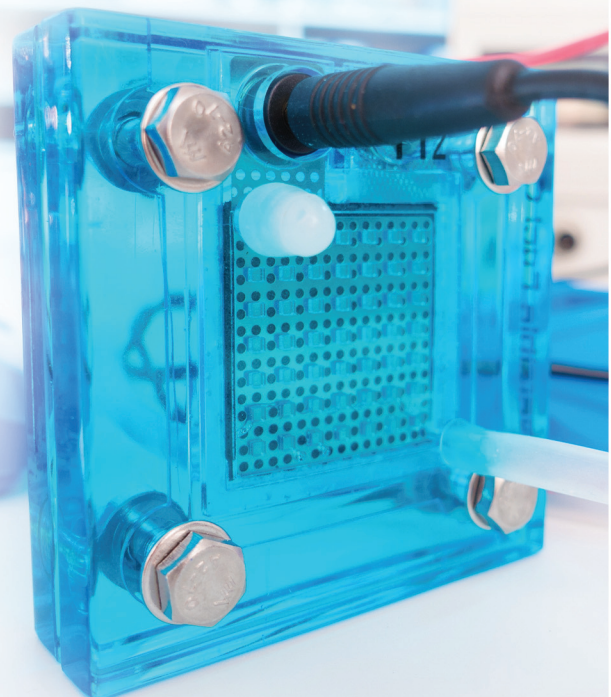
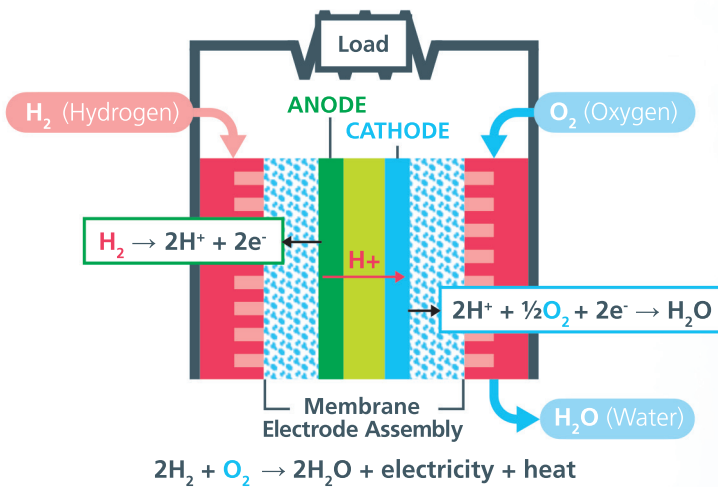
Component	Content (wt%)
PFSA Polymer	27 ± 2
Ethanol	44 ± 4
Water	29 ± 4

Example of Conditions for Catalyst Layer / Ink Preparation

Catalyst	Catalyst	I/C	Pt: Cathode / Anode
	TEC10E50E (Product of TKK)	0.8	0.1 / 0.4 mg cm ⁻²
Ink Preparation	Solid	Water/Ethanol	Processing
	10 wt%	1/1	Dispersed at 300 rpm / 1 hr by planetary ball mill

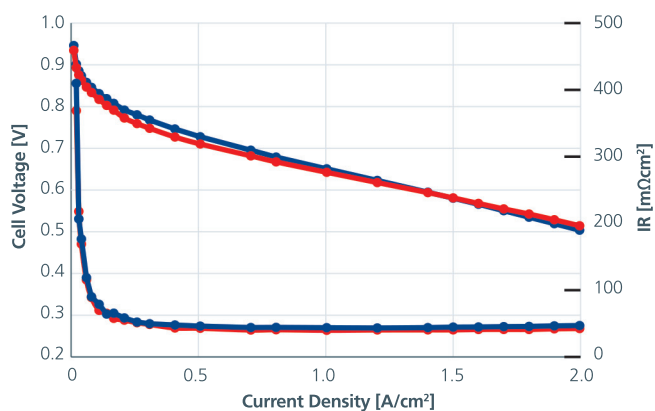
PEMFC: Proton Exchange Membrane Fuel Cell

Generates electricity by use of hydrogen and oxygen.

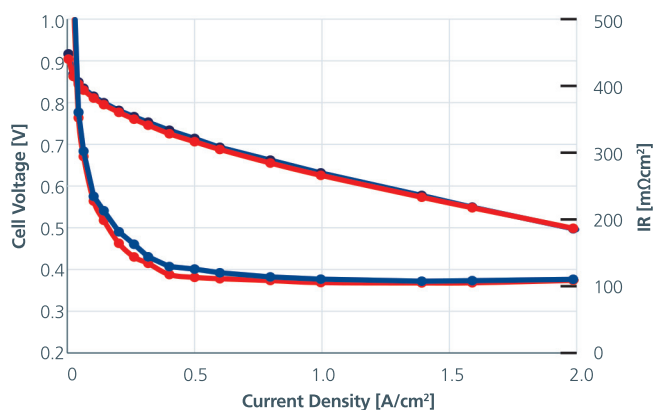


Comparison between IC154 as LSC (Long-Side-Chain Sulfonic Acid Groups) EW800 to SSC (Short-Side-Chain Sulfonic Acid Groups) EW700 Shows Equivalent Performance

Condition 1: 80°C 100% RH 50 kPa H₂/Air



Condition 2: 95°C 20% RH 50 kPa H₂/Air



— Benchmark (SSC EW700) — IC154 (LSC EW800)



Notice to Customers: Purchasers of this product are required to submit a written agreement regarding prohibition of resale to any third party and not to use for any other purposes without prior consent.

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