

IC154: AGC's low equivalent weight (EW) ionomer dispersion grade

- Perfluorosulfonic acid (PFSA) ionomer dispersed into an aqueous media (ethanol/water)
 - PFSA ionomer is an ion-exchange polymer in acid form, which is made from perfluorosulfonyl vinyl ether (PSVE) / tetrafluoroethylene (TFE) copolymer

Key Attributes

- Contains high polymer solid
- Enables high power generation because of its high ion exchange capacity
- Has long-side-chain sulfonic acid groups and performs comparably or better than other ionomers with short-side-chain sulfonic acid groups, even with less ion exchange capacity
- Shows its maximum performance when used in the cathode which determines the power output, but can also be used in the anode

Composition of IC154

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

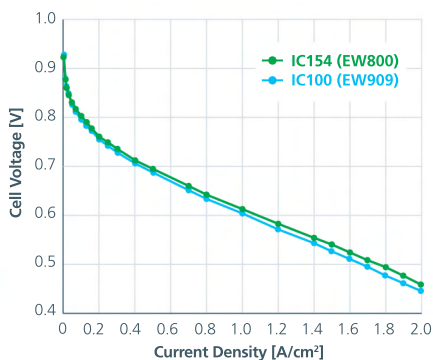
Basic Properties of IC154

Property	Value or Remark
Ion Exchange Capacity (IEC, H ⁺ polymer basis)	1.25 meq/g ± 0.1
Equivalent Weight (EW, H ⁺ polymer basis)	800 g/eq median
Viscosity (at 76 sec ⁻¹)	180 mPa·s ± 100
Color (APHA/Hazen scale)	<100 (Colorless, Transparent)

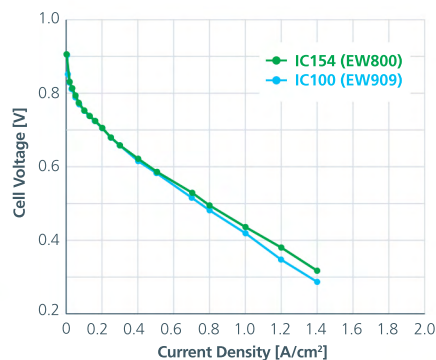
Usage Example

Catalyst Layer	Ink Preparation	Dispersion	Annealing
Catalyst: TEC10E50E (TKK) I/C: 0.8 Pt: Cathode 0.1 mg/cm ²	Solid: 10 wt% Solvent ratio: Water/Ethanol = 1/1	300 rpm / 1 hr by planetary ball mill	150°C, 15 minutes

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



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

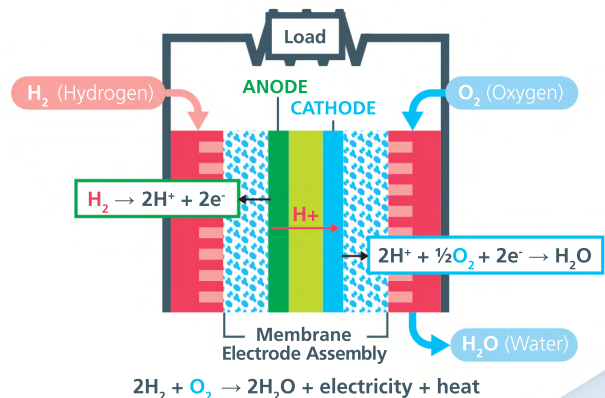


Applications

- Proton Exchange Membrane Fuel Cell (PEMFC)
- Proton Exchange Membrane Water Electrolysis (PEMWE)

PEMFC: Proton Exchange Membrane Fuel Cell

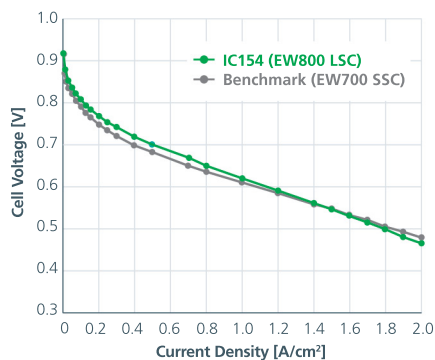
Generates electricity by use of hydrogen and oxygen.



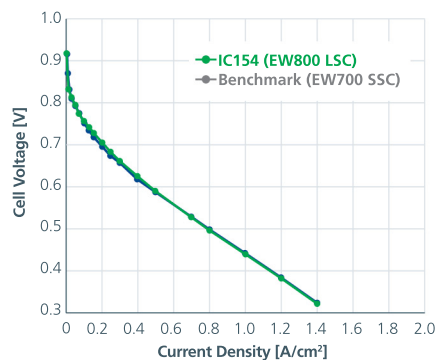
Comparison between IC154 as LSC (Long-Side-Chain Sulfonic Acid Groups) EW800 to SSC (Short-Side-Chain Sulfonic Acid Groups) EW700 Shows Equivalent Performance

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



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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.

Supply Options

- Available from 800g-dispersion (1L plastic bottle)

Recommended Storage Conditions

Please store at 0-30 °C in the original containers. Keep the container tightly sealed so that solvent evaporation does not cause a viscosity change. Store the container indoors, and avoid exposing the container to direct sunlight, rain, or snow.

Please be careful not to freeze the IC154 in the winter. Please use it as soon as possible before the characteristics change.

Handling Instructions

- IC154 is a hazardous material that contains ethanol, a flammable solvent. Refer to Safety Data Sheet (SDS) for further handling information.
- Data listed here are measured values at AGC and are not guaranteed values.



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