

FUEL CELL**5500292**

**POLYMER ELECTROLYTE
HYDROGEN-OXYGEN FUEL CELL
WHERE THE POLYMER ELECTROLYTE
HAS A WATER REPELLENCY GRADIENT
AND A CATALYTICALLY ACTIVE
COMPONENT CONCENTRATION
GRADIEM ACROSS OXYGEN
ELECTRODE**

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The polymer electrolyte type hydrogen-oxygen fuel cell of the present invention comprises an oxygen electrode and a hydrogen electrode, a polymer electrolyte membrane provided between the oxygen electrode and hydrogen electrode and electron conductors provided on the side of the electrodes which is opposite to the electrolyte side and the oxygen electrode comprises a catalytically active component, a carrier for the catalytically active component and a binder and has such a gradient in water repellency across the thickness that the water repellency is highest in the area adjacent to the electrolyte and lowest in the area adjacent to the conductor. In this fuel cell, flooding of water at the interface between the oxygen electrode and the electrolyte can be prevented.

5500307**SOLID OXIDE FUEL CELL**

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A solid oxide fuel cell, which comprises an assembly of a plurality of unit cells each comprising a solid electrolyte, and a fuel electrode and an air electrode provided on both sides of the solid electrolyte,

respectively, the fuel electrode being composed mainly of ruthenium, nickel and ceramics can perform power generation of high efficiency with hydrocarbon or hydrogen resulting from complete reforming of hydrocarbon, or a steam-reformed gas containing carbon monoxide as the main component as a fuel gas.

5501914**SOLID OXIDE ELECTROLYTE FUEL CELL**

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A solid oxide electrolyte fuel cell comprises a power generation film consisting of a solid oxide electrolyte film dimpled over substantially the whole area on both sides thereof, an oxygen electrode formed on one side thereof, and a fuel electrode formed on the other side of thereof, and comprises a pair of interconnectors located on both sides of the power generation film. Furthermore, this invention adopts a seal structure for sealing each side of the power generation film to each of the corresponding interconnectors. The peripheral area of the power generation film is provided with a seal face with the interconnector and is formed to lie in essentially the same plane as the apices of the dimpled pattern formed on the power generation film, and the provided seal section has approximately the same thermal expansion coefficient as the solid oxide electrolyte film which forms the power generation film.

5501915**POROUS ELECTRODE FOR ELECTRODE ASSEMBLIES IN A FUEL CELL**

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A porous electrode suitable for use in a membrane electrode assembly for solid polymer fuel cells comprises a highly dispersed precious metal catalyst on particulate carbon impregnated with proton conducting polymer, and, a further component comprising