

Title (en)

ELECTROLYSIS CELL FOR POLYMER ELECTROLYTE MEMBRANE ELECTROLYSIS AND COATING

Title (de)

ELEKTROLYSEZELLE ZUR POLYMERELEKTROLYTMEMBRAN-ELEKTROLYSE UND BESCHICHTUNG

Title (fr)

CELLULE D'ÉLECTROLYSE POUR ÉLECTROLYSE À MEMBRANE ÉLECTROLYTIQUE POLYMÈRE ET REVÊTEMENT

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Application

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Abstract (en)

[origin: WO2023025426A1] The invention relates to an electrolysis cell (1) for polymer electrolyte membrane electrolysis with a cathodic half-cell (5) and an anodic half-cell (7). The cathodic half-cell (5) and the anodic half-cell (7) are separated from one another by means of a polymer electrolyte membrane (4). At least one of the half-cells (7, 8) has a channel structure (13a, 13b) which is formed by a gas diffusion layer (11a, 11b) and by a bipolar plate (21a, 21b). The bipolar plate (21a, 21b) has a main body (23) made of a metal base material (25, 27), to which a coating (29) made of a coating material (31) is applied. The coating material (31) is present in a homogeneous mixed phase comprising titanium niobium (TiNb), titanium niobium nitride and also iridium and/or iridium carbide (IrC), in particular in a homogeneous single layer which is formed on the metal main body (23). A coating (29) to be applied as a protective layer to a metal component of an electrolysis cell (1) is also described. This coating comprises the constituents titanium niobium (TiNb) and titanium niobium nitride (TiNbN) and also admixtures of iridium carbide (IrC) and/or (Ir).

IPC 8 full level

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