CLAIMS

1. Electrode for evolution of gaseous products in electrochemical cells consisting of a valve metal substrate coated with at least one first catalytic composition and an outer catalytic composition, said at least one first catalytic composition comprising a mixture of a valve metal or tin or an oxide thereof and noble metals chosen in the platinum group metals or oxides thereof taken alone or in admixture, said at least one first catalytic composition obtained by thermal decomposition of precursors, said outer catalytic composition deposited by a chemical or physical vapor deposition technique, the amount of noble metal in said at least one first catalytic composition being above 5 g/m² and the amount of noble metal in said outer catalytic composition ranging between 0.1 and 3.0 g/m².

2. The electrode according to claim 1, wherein said mixture of said at least one first catalytic composition comprises titanium, iridium and ruthenium.

3. The electrode according to claim 1, wherein said outer catalytic composition comprises ruthenium and/or iridium.

4. The electrode according to any one of claims 1 to 3, wherein the specific noble metal loading of said at least one first catalytic composition is 6 to 8 g/m² and the specific noble metal loading of said outer catalytic composition is 1.5 to 2.5 g/m².

5. Method for manufacturing an electrode according to any one of claims 1 to 4 comprising the deposition of said outer catalytic composition by a chemical or physical vapor deposition technique.

6. Method for manufacturing an electrode according to claim 5 comprising the deposition of said outer catalytic composition as a mixture of oxides by reactive sputtering of noble metals selected from the group of platinum metals.

7. Method for the reactivation of an exhausted electrode consisting of a metal substrate and an exhausted catalytic coating, comprising the deposition by a

chemical or physical vapor deposition technique of an outer catalytic composition comprising noble metals selected from the group of platinum metals or oxides thereof taken alone or in admixture, the amount of noble metal in said outer catalytic composition ranging between 0.1 and 3.0 g/m².

8. Method for the reactivation of an exhausted electrode according to claim 7 comprising the deposition of said outer catalytic composition as a mixture of oxides by reactive sputtering of iridium and ruthenium onto said exhausted catalytic coating.

9. Electrolysis cell comprising a cathodic compartment containing a cathode and an anodic compartment containing an anode separated by a membrane or diaphragm, said anodic compartment being fed with an alkali chloride brine, wherein said anode of said anodic compartment is an electrode according to any one of claims 1 to 4.

CLAIMS

1. Electrode for evolution of gaseous products in electrochemical cells consisting of a valve metal substrate coated with at least one first catalytic composition and an outer catalytic composition, said at least one first catalytic composition comprising a mixture of a valve metal or tin or an oxide thereof and noble metals chosen in the platinum group metals or oxides thereof taken alone or in admixture, said at least one first catalytic composition obtained by thermal decomposition of precursors, said outer catalytic composition deposited by a chemical or physical vapor deposition technique, the amount of noble metal in said at least one first catalytic composition being above 5 g/m² and the amount of noble metal in said outer catalytic composition ranging between 0.1 and 3.0 g/m².

2. The electrode according to claim 1, wherein said mixture of said at least one first catalytic composition comprises titanium, iridium and ruthenium.

3. The electrode according to claim 1, wherein said outer catalytic composition comprises ruthenium and/or iridium.

4. The electrode according to any one of claims 1 to 3, wherein the specific noble metal loading of said at least one first catalytic composition is 6 to 8 g/m² and the specific noble metal loading of said outer catalytic composition is 1.5 to 2.5 g/m².

5. Method for manufacturing an electrode according to any one of claims 1 to 4 comprising the deposition of said outer catalytic composition by a chemical or physical vapor deposition technique.

6. Method for manufacturing an electrode according to claim 5 comprising the deposition of said outer catalytic composition as a mixture of oxides by reactive sputtering of noble metals selected from the group of platinum metals.

7. Electrolysis cell comprising a cathodic compartment containing a cathode and an anodic compartment containing an anode separated by a membrane or

diaphragm, said anodic compartment being fed with an alkali chloride brine, wherein said anode of said anodic compartment is an electrode according to any one of claims 1 to 4.