

An aluminium production cell comprises an elongated cathode current collector bar (7) in contact with a carbonaceous cathode (4), the cathode current collector bar (7) of copper or a copper alloy coated on its surface facing the cathode or all around with a thin steel protective layer 0.15 mm to 4 mm thick that forms an effective protection of the current collector bar from diffusion of aluminium or other reaction products produced on the carbonaceous cathode during operation. The volume ratio of the copper or copper alloy to the thin steel protective layer is for example in a range 400 % - 500 %. The protective thin steel layer including an optional pre-applied thinner conductive non-ferrous under or overcoat is preferably in direct contact with the carbonaceous cathode that is ready to use with no need for rodding with cast iron.