

The invention relates to an electrolytic cell (1) for the production of aluminium (2) including collector bars Structure modifications (13, 14, 15, 16) under the cathode (4), namely a copper collector bar held in a U-shaped profile or directly embedded into the cathode. This leads to an optimized current distribution in the liquid aluminium metal (2) and/or inside the carbon cathode allowing for operating the cell at lower voltage. The lower voltage results from either a lower anode to cathode distance (ACD), and/or to lower voltage drop inside the carbon cathode from liquid metal to the end of the collector bar.