

(19)

Description

The present invention relates to an electrode support for an electric storage cell, the support being constituted by a metal foil which is regularly perforated and embossed and which is intended to be covered in a paste of active material.

It relates in particular to a thin foil of nickel or nickel-plated steel embossed in such a way as to enable active material to adhere thereto.

10 Such a support is known, for example from French patent specification FR-A-2 250 209. The foil in that specification is embossed with a large number of individual bumps which are so close together that the entire surface of the foil is deformed in practice.

15 The aim of the invention is to provide a foil which is better adapted to being an electrode support, i.e. which provides better adherence for active material and which is mechanically stronger. This aim is achieved by an electric storage cell electrode support constituted by a metal foil
20 which is regularly perforated and embossed, and which is intended to be covered in a paste of active material, which support is characterized by the fact that said foil is embossed along a regular set of lines forming polygons, and that the perforated area is substantially equal to the embossed area.

25 The depth of the embossing may be about 0.6 mm for a metal foil which is about a few hundredths of a millimeter thick.

Other characteristics and advantages of the invention appear from the following description of an embodiment given by way of non-limiting illustration, in which:

30

Figure 1 is an elevation view of a foil in accordance with the invention, shown embossed by not perforated;

Figure 2 is a section view on line II-II of figure 1; and
Figure 3 shows the Figure 1 foil after being perforated.

35

Figures 1 and 2 show a metal foil 1 of nickel-plated steel having a thickness of 0.1 mm and embossed along two series 2

and 3 of lines which are mutually parallel so as to form rhombuses 4 having an apex angle of about 60° . For example, the embossed lines may be about 0.75 mm wide, they are preferably about 0.6 mm deep, and the distance between two 5 parallel lines is about 2.4 mm.

A foil which has been embossed in this way has about 40% of its total area embossed.

After embossing, the foil is perforated as shown in Figure 3. The perforations 5 are circular, about 2 mm in diameter, 10 and have their centers at a spacing of about 3 mm.

The resulting perforation density is about 40% of the area of the foil 1, i.e. substantially the same as the density of the above-defined embossing.

It has been observed that a foil in accordance with the 15 invention has improved mechanical resistance to traction than do the foils used in the past; its most advantage is that its shape retains active material paste better.

Naturally the rhombus pattern has been given solely by way of example: it has the advantage of being easy to manufacture, 20 but it may be replaced by any other polygonal pattern so long as the ratio between the embossed area and the perforated area is maintained.

Furthermore, the depth of the embossing should be chosen as a function of the material and the thickness of the foil.

25 The invention is applicable, in particular, to alkaline storage cells.

30

35

CLAIMS

- 1/ An electric storage cell electrode support constituted by a metal foil (1) which is regularly perforated and embossed, and which is intended to be covered in active material, the support
5 being characterized by the fact that said foil is embossed along a regular set of lines (2,3) forming polygons, and that the perforated area is substantially equal to the embossed area.
- 10 2/ An electrode support according to claim 1, characterized by the fact that said perforated area and said embossed area each represent about 40% of the total area of the foil (1).
- 3/ An electrode support according to claim 1 or 2,
15 characterized by the fact that the depth of the embossing is about 0.6 mm for a foil (1) which is about a few hundredths of a millimeter thick.
- 4/ An electrode support according to claim 2 or 3,
20 characterized by the fact that said polygons are rhombuses (4).
- 5/ An electrode support according to claim 4, characterized by the fact that said rhombuses have a small apex angle substantially equal to 60°.
25
- 6/ An electrode support according to claim 5, characterized by the fact that, for circular perforations (5) having a diameter of about 2 mm, and at a spacing of about 3 mm, the lines (2,3) defining said rhombuses (4) are substantially about 0.75 mm
30 across, and the distance between two lines is about 2.4 mm.

