The reason is that in the accumulator precursor of the present invention, described in detail hereinafter, the fact that the textile structure of the nanostructured positive electrodes, even when they are stacked on one another or wound around each other, allows the passage of lithium ions in all directions, and especially in a direction perpendicular to the plane of the textile electrodes, is exploited. The result is a regular diffusion of the lithium ions throughout the accumulator and/or accumulator precursor.

In embodiments of the present invention, therefore, it is unnecessary to apply a lithium strip to each of the lithium-receiving electrodes (as in US 5 871 863); instead, a single lithium strip, or a small number of strips, with a thickness that is relatively greater, is sufficient to introduce the desired amount of lithium in a regular way into all of the positive electrodes receiving lithium ions.

Embodiments of t~~T~~he present invention accordingly seek to provides a lithium-ion accumulator precursor comprising not only one or more superposed nanostructured textile electrodes but also at least one sacrificial lithium electrode, in other words an electrode made of lithium or lithium alloy that will be partly or entirely consumed during the production of the definitive accumulator from the accumulator precursor.

According to an aspect, there is provided a lithium-ion~~The~~ accumulator precursor ~~of the present invention~~ comprises~~e~~ing

- one or more electrode modules each formed by

(a) at least one textile positive electrode precursor, composed of a textile metallic structure, fluorinated or oxyfluorinated at the surface, based on one or more

~~The present invention a~~According~~ly~~ to another aspect, there is provided~~s~~ a method for manufacturing a lithium-ion accumulator from a lithium-ion accumulator precursor as described above, said method involving:

(i) a step of electrochemically reducing the positive electrode precursor or precursors by the sacrificial metallic lithium electrode, this step comprising the application of a potential or a current between the positive electrode and the sacrificial metallic lithium electrode and effecting the partial or total consumption of the sacrificial metallic lithium electrode, until the fluoride or oxyfluoride layer of the positive electrode precursors has been partly or totally converted into a nanostructured conversion layer. In the course of this step, the sacrificial metallic lithium electrode is connected to the positive electrode precursor via their respective connectors (electron collectors) and a potential, generally of between 3.5 and 1.5 V, is applied so as to induce electrochemical oxidation of the sacrificial metallic lithium electrode, electrochemical reduction of the fluoride or oxyfluoride layer of the positive electrode precursor, and a slow diffusion of the lithium ions from the sacrificial metallic lithium electrode to the fluoride or oxyfluoride layer of the positive electrode precursor.

(ii) A second step of electrochemically reducing the negative electrode precursor by the sacrificial metallic lithium electrode. During this step a current is applied between the sacrificial metallic lithium electrode and the negative electrode precursor, in such a way as to induce electrochemical oxidation of the sacrificial metallic lithium electrode, electrochemical reduction of the negative electrode, until the potential of the negative electrode, measured relative to the

CLAIMS

1. A lithium-ion accumulator precursor comprising
- one or more electrode modules ~~(1)~~ each formed by
(a) at least one textile positive electrode precursor ~~(2)~~, composed of a textile metallic structure ~~(4)~~, fluorinated or oxyfluorinated at the surface ~~(5)~~, based on one or more transition metals from groups 4 to 12 of the Periodic Table of the Elements,
(b) a polymeric separator ~~(6)~~, impregnated with a solution of a lithium salt in an aprotic organic solvent, said separator covering the entire surface of the textile positive electrode precursor,
(c) a negative electrode precursor ~~(3)~~ forming a solid, preferably continuous, matrix which encloses the structure formed by (a) and (b), and
- at least one sacrificial metallic lithium electrode, formed by a metallic lithium strip ~~(9)~~ supported by an electrical conductor ~~(10)~~, and separated from the electrode module or modules by a polymeric separator ~~(11)~~ impregnated with a solution of a lithium salt in an aprotic organic solvent,
characterized in that the ratio of the geometric surface area of the lithium strip to the cumulative geometric surface area of all of the textile positive electrode precursors is within the range from 0.05 to 0.33, preferably from 0.1 to 0.25.

2. The accumulator precursor as claimed in claim 1, characterized in that the surface-fluorinated or surface-oxyfluorinated metallic textile structure is a non-woven structure formed of short fibers preferably

having an average length of between 1 cm and 50 cm, preferably between 2 cm and 20 cm, and an equivalent diameter of between 5 μm and 50 μm.

3. The accumulator precursor as claimed in claim 1 or 2, characterized in that the textile metallic structure is made of unalloyed or low-alloy steel.

4. The accumulator precursor as claimed in any of the preceding claims, characterized in that a plurality of plane-shaped electrode modules of identical dimensions are superposed in parallel with one another.

5. The accumulator precursor as claimed in any of the preceding claims, characterized in that the plane of the lithium strip of the sacrificial metallic lithium electrode is parallel to the plane of the electrode module or modules.

6. The accumulator precursor as claimed in any of the preceding claims, characterized in that it further comprises an electron collector ~~(8)~~, in electrical contact with the negative electrode precursor (c) of each of the electrode modules, said electron collector being preferably formed by one or more copper grids arranged parallel to the plane of the electrode module or modules and intercalated between them.

7. A method for producing a lithium-ion accumulator from a lithium-ion accumulator precursor as claimed in any of the preceding claims, comprising:

(i) a step of electrochemically reducing the positive electrode precursor or precursors by the sacrificial metallic lithium electrode, this step comprising the application of a potential or a current between the positive electrode and the sacrificial metallic lithium electrode and leading to the partial or total consumption