85.07 Electric accumulators, including separators therefor, whether or not rectangular (including square).

8507.10 - Lead-acid, of a kind used for starting piston engines

8507.20 - Other lead-acid accumulators

8507.30 - Nickel-cadmium

8507.40 - Nickel-iron

8507.50 - Nickel-metal hydride

8507.60 - Lithium-ion

8507.80 - Other accumulators

8507.90 - Parts

Electric accumulators (storage batteries or secondary batteries) are characterised by the fact that the electrochemical action is reversible so that the accumulator may be recharged. They are used to store electricity and supply it when required. A direct current is passed through the accumulator producing certain chemical changes (charging); when the terminals of the accumulator are subsequently connected to an external circuit these chemical changes reverse and produce a direct current in the external circuit (discharging). This cycle of operations, charging and discharging, can be repeated for the life of the accumulator.

Accumulators consist essentially of a container holding the electrolyte in which are immersed two electrodes fitted with terminals for connection to an external circuit. In many cases the container may be subdivided, each subdivision (cell) being an accumulator in itself; these cells are usually connected together in series to produce a higher voltage. A number of cells so connected is called a battery. A number of accumulators may also be assembled in a larger container. Accumulators may be of the wet or dry cell type.

The main types of accumulators are :

(1) **Lead-acid accumulators**, in which the electrolyte is sulphuric acid and the electrodes lead plates or lead grids supporting active material.

(2) **Alkaline accumulators**, in which the electrolyte is usually potassium, or lithium hydroxide or thionyl chloride and the electrodes are, for example :

(i) Positive electrodes of nickel or nickel compounds and negative electrodes of iron, cadmium or metal hydride;

(ii) Positive electrodes of lithiated cobalt oxide and negative electrodes of a blend of graphite;

(iii) Positive electrodes of carbon and negative electrodes of metallic lithium or lithium alloy;

(iv) Positive electrodes of silver oxide and negative electrodes of zinc.

The electrodes may consist of simple plates, grids, rods, etc., or of grids or tubes covered or filled with a special paste of the active material. The containers for lead-acid accumulators are usually made of glass or, in the case of car batteries, are moulded from plastic, hard rubber or composition material. In big stationary accumulators, glass or lead lined, plastic or wood boxes are used, while containers for alkaline accumulators are usually of steel or plastics. Alkaline accumulators may be of a specific size and shape, so designed to fit the device for which they are the source of electricity. They may be within waterproof containers. Many alkaline accumulators may have the external appearance of primary cells or batteries of heading 85.06.

Accumulators are used for supplying current for a number of purposes, e.g., motor vehicles, golf carts, fork-lift trucks, power hand-tools, cellular telephones, portable automatic data processing machines, portable lamps.

Some lead-acid accumulators are fitted with a hydrometer, which measures the specific gravity of the electrolyte and so indicates roughly the degree of charge of the accumulator.

Electric accumulators remain classified here even if presented without their electrolyte.

Accumulators containing one or more cells and the circuitry to interconnect the cells amongst themselves, often referred to as "battery packs", are covered by this heading, whether or not they include any ancillary components which contribute to the accumulator's function of storing and supplying energy, or protect it from damage, such as electrical connectors, temperature control devices (e.g., thermistors), circuit protection devices, and protective housings. They are classified in this heading even if they are designed for use with a specific device.

PARTS

Subject to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), the heading also covers parts of accumulators, e.g., containers and covers; lead plates and grids, whether or not coated with paste; separators of any material (except of unhardened vulcanised rubber or of textile material), including those in the form of flat plates merely cut into rectangles (including squares), meeting very precise technical specifications (porosity, dimensions, etc.) and hence ready for use.

The heading **does not cover** :

(a) Terminals (**heading 85.36**).

(b) Spent electric accumulators and waste and scrap thereof (**heading 85.48**).