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The invention relates to the semiconducting technology and may be used for the indium phosphide epitaxial layers production grown by the chloride process with reproductive electrophysical properties. In order to increase the quality and reproduction of epitaxial layers electrophysiacl properties in the process of growing the epitaxial $A^{III}B^{V}$ layers in the chloride system, including the equipment preparation, chemical etching, the reactor oxygen lancing, the chloride thermostating, heating of the source and the lack, growing of the layers, is carried out the repeated gaseous etching of the grown layers with its subsequent growth. The technical result of the invention consists in the repeated performance of the grown layers gaseous etching with its subsequent growth.