

a 2005 0077

The invention relates to chemistry, in particular to the electrochemical processes for iron or copper production in pure state.

The process, according to the invention, includes the electrolysis of the recirculated aqueous electrolyte solutions by using the periodic current with return pulse adjustable for duration, periodic separation from the cathode of the reduced metal particles and their transfer into a liquid organic phase, consisting of perchlorobutadiene or perchloroethylene, of which density is greater than the electrolyte density.

At the same time, as electrolyte are used the solutions obtained as a result of solubility in hydrochloric or sulphuric acid of the corresponding metals in the form of metal-working industry waste or of reduced metal particles.

The iron cleaning is carried out by the electrolysis of chloride solution, containing 120...180 g/l of iron ions and having pH 0,8...2,4, with the current cathodic density of  $(34...42) \cdot 10^3 \text{ A/m}^2$  and the anodic one of  $(5...20) \cdot 10^3 \text{ A/m}^2$ . The copper cleaning is carried out by the electrolysis of sulphate solution, containing 110...140 g/l of copper ions and having pH 2,5...4,2, with the current cathodic density of  $(10...16) \cdot 10^3 \text{ A/m}^2$  and the anodic one of  $(2...8) \cdot 10^3 \text{ A/m}^2$ .

Claims: 3