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Ways of decrease in the material consumption in case of their separation by the combined methods

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Abstract. When processing hardly processed materials it is necessary to consider the combined methods. Application of an anode component in the combined process considerably reduces cutting forces from mechanical influence at division of materials that will allow to accelerate process without violation of accuracy and quality of a blanket. Electrochemical processing doesn't damage a processed surface, provides a high class of purity.

Introduction

Electrochemical cell with electronic conductors in contact with ionic conductors has to be considered as uniform system. At the same time we receive the system interesting us — one border has undressed an electrode — electrolyte. In the same way as this the system is a part of big system, itself gra- Nice of the section consists of components, parts or under -systems. As all systems are in the nature in the constant movement, they need to be considered as processes. It means that activity of border of times - has put an electrode — electrolyte develops from active sty components or processes. Further, subsystems also the making processes -interact - in such way of system survive and keep viability. Therefore to understand behavior systems in response to external influence, it is necessary to identify components which make system and to understand interactions between them. Names -but thus function and structure communicate.

Interesting is the method of electro-chemical treatment [2]. What are the components of processes at the border the partition depends on the level of analysis. For example, on a phenomenological level, one can consider the following system components of the boundary:

- 1) separation of charge, including the relationship between current and the charging of the double layer and changes in the potential and the surface excess;
- 2) adsorption — desorption, which links the value of the activities and capacities with the use of isotherms;
- 3) the charge transfer on the electrode, which determines the relation between the Faraday current, potential and activity of the particles at the interface associated with the reaction of charge transfer;
- 4) mass transfer with (or without) the volume of bytkom (downside), which binds on the top notnow concentration and flow;
- 5) homogeneous chemical reaction (complexopathy, dissociation, etc.);
- 6) formation of the space charge;
- 7) formation of the phase on the electrode (anodefilm, layer O₂);
- 8) diffusion in the electrode;



- 9) heterogeneous chemical reactions (re the combination of disproportioning);
- 10) the phenomenon of surface migration (surface diffusion etc.).

These process components at the boundary time the case was long known and most of them received mathematical treatment, as specific and processes. However, since components of the surface section of the complex, these processes function in the system together; one the surface of the section differs from the other number, co-operating processes, i.e. hard-STU interactions[3].

In the late 40's-early 50-ies ripe a detailed understanding of electrode kinetics and electrode processes in General [1]. Was Vyasa- HN mechanisms of solvation of ions, the cathode you division of hydrogen and anodic oxygen evolution; progress was made in the General understanding of the after- coherent reactions; solved the mysteries of the double the layer immediately generalized as multi-layer systems topic, and paving the way for future KINETICAL research a net surface processes Sov. In particular, since it has been possible figure out the kinetic behavior hemosorbition of intermediate products, soluble Pro-intermediate products in various solutions, or-organic electrochemical reactions. In the lasttion 10 years particular attention has received optical methods: conventional and electronic micro scopy, spectrophotometry, reflection methods, al-ipsometry etc., reflecting microscopic look at macroscopic phenomena. Though that much is already known, just start over to understand the complexity of the electrochemical processes of growth the phases observed during the deposition of metals the use of oxides.

Options for reducing costs in their dividing by the combined

1. The application of anodic component in the combined process greatly reduces cutting forces from mechanical action when division of materials, which will accelerate the process without compromising the accuracy and quality the surface of the layer.
2. Control of combined process separation of material is possible by changing the anodic component in a wide range that will give lower cutting forces and eliminate defects (chips, burrs) at the exit from the cutting zone instrument for all materials.
3. Control of combined process can independently change the settings chemical and mechanical component with Ogrenicename their limits. The purpose of the controltion would be to optimize the techno-logical modes, combining all components of the Combirelated process.
4. The process control is possible with using adaptive systems, working on known mechanism of interaction of elements technological systems with constraints on the presensible error surface separation material and acceptable micro-roughness.
5. Adaptive equipment systems-solyut to implement feedback and perform operational adjustment modes is selectedtion effects depending on the properties divided given material and requirements to the product.
6. The precision management division who- through the maintenance of the desired position cutting edge non-rigid external tool effects controlled automatically.

Insights

1. Studied a systematic approach to the study combined methods with overlay electrictriction of the field. It consists in considering technology the ecological problems of separating materials with a maliniemi losses in the cutting as a single processa, including technological issues, characteristics of equipment technological equipment and adaptive management structuring elements of the structure of the machine - fixture-detail.
2. Examined experimental equipmention, with adaptive control in koordinate that allows you to set a numerical yet the indicators of maximum achievable results for the pointness of separation and the quality of the surface layer.
3. Studied developments of the past years for to solve the problem by creating a resurdobarokamere the process and equipment, ensuring the priority of the country in the creation of competitive products on quality indicators of value and novelty.

The solution to the problem of stabilization parameters the trench separation is possible with adaptive control development of process modes, the position of the cutting of the tool in the groove, which will allow marginal accuracy in the division- Institute of workpieces. The expansion of technology who opportunities process becomes real after calibration of the lateral surfaces of the grooves [8].

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