

**ENSURING STABILITY AND TRANSITION MOMENT RESISTANCE
OF CURRENT COLLECTOR**

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For sliding electrical contacts of all types of processes have primary importance in the formation of the contact friction zone of intermediate layers that protect the friction surfaces of the setting, and, on the other hand, the impact on the stability and transient voltage drop.

Therefore, to increase stability and minimize the friction contacts torque in connection with the current collectors work in extreme operating conditions as the contacts are widely used precious metals and their alloys. In this case, by reducing the role of oxide films and other chemicals are specific structural prerequisites for the development of the processes of damage work surfaces, occurs not only it's decrease in electroresistivity transition, but also propensity increasing of adhesion interaction mating surfaces, increasing friction and run-out.

The purpose of optimization tribological and electrical properties of the current collectors made by "brush" scheme (an alloy of platinum and iridium) - Collector (gold that electrolytically deposited on brass rings), performed the investigation of the friction pair "of platinum-iridium alloy - gold plating".

Influence on processes of a friction of preliminary plastic deformation and chemical passivating surface treatment of a gold covering is investigated.

Chemical passivativ treatment of gold current collector surface coating by fluid comprising including sulfur containing surface-active substance in the resulting on a surface stay ultra-thin (thickness about 1 nm) chemisorption layer of surfactant, which prevents adhesion of gold to platinum-iridium alloy.

This chemisorption layer increases in several times the critical load of transition to seizure than dramatically reduces friction, run-out and damage of the gold coating, and also promotes a strong work hardening and ductility of gold coating during break-in that enhances quality of surface and creates conditions for optimal performance in a current collector long-term operation.

Tests have shown that for optimize the tribological and electrical properties of the current collector the most effective is pre-chemical passivation of the surface gold coating with a preliminary strain hardening gold plating.