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*Journal of the Balkan Tribological Association* is an International Journal edited by the Balkan Tribological Association for rapid scientific and other information, covering all aspects of the processes included in overall tribology, tribomechanics, tribochemistry and tribology.

The Journal is referring in Chem. Abstr. and RJCH (Russia).

### **Aims and Scope**

The decision for editing and printing of the current journal was taken on Balkantrib'93, Sofia, October, 1993 during the Round Table discussion of the representatives of the Balkan countries: Bulgaria, Greece, Former Yugoslavian Republic of Macedonia, Romania, Turkey and Yugoslavia. The Journal of the Balkan Tribological Association is dedicated to the fundamental and technological research of the third principle in nature – the contacts. The journal will act as international focus for contacts between the specialists working in fundamental and practical areas of tribology.

The main topics and examples of the scientific areas of interest to the Journal are:

- (a) overall tribology, fundamentals of friction and wear, interdisciplinary aspects of tribology;
- (b) tribotechnics and tribomechanics; friction, abrasive wear, adhesion, cavitation, corrosion, computer simulation, design and calculation of tribosystems, vibration phenomena, mechanical contacts in gaseous, liquid and solid phase, technological tribological processes, coating tribology, nano- and microtribology;
- (c) tribochemistry – defects in solid bodies, tribochemical emissions, triboluminescence, tribochemiluminescence, technological tribochemistry; composite materials, polymeric materials in mechanics and tribology; special materials in military and space technologies, kinetics, thermodynamics and mechanism of tribochemical processes, combustion, fires, explosions;
- (d) sealing tribology;
- (e) biotribology – biological tribology, tribophysiotherapy, tribological wear, biological tribotechnology, etc.;
- (f) lubrication – solid, semi-liquid lubricants, additives for oils and lubricants, surface phenomena, wear in the presence of lubricants; lubricity of fuels; boundary lubrication;
- (g) ecological tribology; the role of tribology in the sustainable development of technology; tribology of manufacturing processes; of machine elements; in transportation engineering;
- (h) management and organisation of the production; machinery breakdown; oil monitoring;
- (i) European legislation in the field of tribotechnics and lubricating oils; tribotesting and tribosystem monitoring;
- (j) educational problems in tribology, lubricating oils, fuels and contacts;
- (k) contacts – mechanical, agricultural, chemical, medical, social environments.

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## **REPARATORY HARD FACING OF WORKING PARTS MADE OF MARTENSITIC STAINLESS STEEL IN CONFECTIONARY INDUSTRY**

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### **ABSTRACT**

In order to improve the reparatory hard facing technology in this paper is especially analysed reparatory hard facing of tools for manufacturing compressed products in confectionary industry. Those products are being made of a mixture consisting of several powdery components, which is compressed under high pressure. In that way the connection between particles is realised, thus achieving certain hardness and strength of the confectionary product. The considered tool is made of high-alloyed martensitic stainless steel. The tool contains 35 identical working places. Besides the production process wear, on those tools, from time to time, appear mechanical damage on some of the products shape punches, as cracks at the edges, where the products final shapes are formed. Those damages are small, size wise, but they cause strong effect on the products final shape. The aggravating circumstance is that the shape punch is extremely loaded in pressure, thus after the reparatory hard facing, the additional heat treatment is necessary. Mechanical properties in the heat affected zone (HAZ) are being leveled by annealing and what also partially reduce the residual internal stresses.

*Keywords:* hard facing, filler material, confectionery industry, wear, hardness, microstructure, shape punch.

### **AIMS AND BACKGROUND**

Here has been analysed the damage of the shape punches, described predominant types of wear, and it was also explored the possibility of their hard facing. Specially attention has been devoted to choice of repair procedures in hard facing. After the filler materials and the repair procedures had been chosen and techno-

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\* For correspondence.





























