

**Kaunas University of Technology
Association of Baltic Materials Societies
Lithuanian Materials Research Society
Lithuanian Foundries Association**

**20th International Baltic Conference
MATERIALS ENGINEERING 2011**

Book of Abstracts

October 27-28, Kaunas, Lithuania

Kaunas * Technologija * 2011

AUTODEFORMATION OF CARBURIZED STEEL DURING TEMPERING

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The article analyses the results of autodeformation registered during tempering of carburized steel. Test pieces for tests were carburized till the different depth in order to examine influence of depth of carburization to the deformation of steel during heat treatment operation. Carburization was performed on the one surface of test pieces seeking to analyze extent of acted normal stresses to autodeformation of steel. Different bending loads were applied for analyzed steel from 5 MPa to 100 MPa. Deflection of test pieces was analyzed. The obtained results proved that size and direction of deflection were affected by depth of carburization. Particular results of stretched and compressed surface examination showed different behavior of test pieces during tempering process. Test pieces which undergo deformation at the beginning of martensitic transformation, after unloading bend further. When tempered test pieces with assymmetrically carburized layer bend during hardening, its direction and extent of autodeformation depend on depth of carburization and tempering temperature. Kinetics of autodeformation (during tempering) is affected by difference of volume changes in the carburized part and in the unaffected low carbon part of specimen, and similarly by decomposition of retained austenite in the carburized part.

FERROMAGNETIC SORBENTS FOR COLLECTION AND UTILIZATION OF OIL PRODUCTS

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The paper deals with powder-like ferromagnetic sorbents for collection of the oil products spilled in water. Research is performed on properties, morphology of particles and comparison of different types of the ferromagnetic sorbents obtained on the basis of ferrous powders and technological waste, such as a rolled scale and pulverulent waste from filters.

By means of the specially created electromagnetic device, efficiency of some types of ferromagnetic sorbents is tested for removal of oil products from water. Possibility of removal of oil products being under water, and also from hard objects is demonstrated.