

## ABSTRACT

**Attestation bachelor work:** 66 pages, 19 images, 11 tables, 30 literature sources

**Object of research:** process of formation of structure and phase composition of surface layers in the alloy steel after previous shot peening and subsequent ion-plasma nitriding.

**Subject of research:** the impact of blast processing, depending on the processing time, the structure surface layers of steel 40 after ion-plasma nitriding.

**The purpose of research:** studying of the influence of pre-blast treatment on structure, phase composition of the surface layer of steel 40 after ion-plasma nitriding.

**Methods of research:** microstructural, micrometric and X-ray analysis.

**The results of the study:** it was determined that using pre-blast treatment during 10 minutes the hardness of the surface layers increases after ion-plasma treatment, but it somewhat decreases by increasing the processing time .

**Field of application:** parts and tools, where deformation and compressive stresses in surface layers are important.

THE SURFACE LAYER, RESEARCH, STEEL40, SHOT PEENING,  
MICROSTRUCTURAL ANALYSIS, X-RAY ANALYSIS, MICRO ANALYSIS  
DYUROMETRYCHNYY, STRUCTURE, GRAIN, DEFORMATION