ABSTRACT
The interface improvement between tin based alloys and surface bearings was investigated. For such purpose, mechanical work was performed on the surface bearings before the coating deposition. The mechanical property, namely tensile strength was evaluated.

Keywords: Tin alloys, coating, interface, bearing surface.

INTRODUCTION
The bearings are industrial devices which need to work together with other moving parts to provide relative movement between themselves. The coating of bearing surfaces, usually with anti-friction alloys, provides the surface properties modification, namely wear and friction coefficient decrease (DeHart, 1983). Therefore, the adhesion mechanism between the coating and the substrate should be strong enough to prevent failure of bearings.

In order to improve the adhesion of tin alloy coatings to surface bearings, substrates of plain carbon steel with 0.2% carbon were coated by gravity casting technique with a tin-based alloy, named Babbitt metal Tego V738 (Gmb, 2010).

The coatings were deposited in the standard steel substrate, where the surface of a set of samples was prepared with the usual industrial requirements (group 1) and the surface of another set of samples (group 2) was additionally applied a shot peening treatment. The interface morphology was compared between both sample groups and the interface adhesion was evaluated by tensile tests.

RESULTS AND CONCLUSIONS
The interface morphology of the samples prepared with shot peening treatment is shown in Fig. 1, while the results of tensile test are presented in Fig. 2. The modifications of the steel surface induced by shot peening treatment, besides providing residual stress in the surface and therefore modify mechanical properties of the interface, create recesses on the substrate surface that enables better adhesion.

Despite the increase in adhesion is in large part due to the effect of the mechanical bond created on the substrate surface, there were other factors that contributed to this improvement, namely, the increase of iron rich phases and decrease of the hardness at the interface.
Fig. 1 - Morphology interface of the samples with shot peening treatment.

Fig. 2 - Average values of tensile test in samples of group 1 and group 2

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