Characteristics of Plasma Nitrided Layers

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This article deals with mechanical and chemical properties of nitrided layers which were created by plasma nitriding technology. The aim is to achieve an enhanced surface hardness, better wear resistance, reduced friction coefficient, increase fatigue limit or corrosion resistance. Experiments are focused on using of plasma nitriding process for surface treatment of cavities with diameter of 6 mm. Nitrided layers were applied to steel PO 209 which were subsequently evaluated by metallographic, GDOES, XRD microanalysis and microhardness methods. The results of measurement showed trends of chemical composition of alloying elements after chemical-heat treated process in cavity. Plasma nitriding process is applied for increasing of surface hardness of material in deep cavities. Mechanical properties of tested material were significantly increased. Surface hardness and microhardness is depended on content of nitride formed alloying elements in material.

Keywords: nitriding; microhardness; nitrided layer; Nht thickness.

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