

MECHANICAL ENGINEERING APPLICATIONS OF NANODIAMONDS:

Electroless Nickel Coatings with Reinforcing Nano- and Microsized Particles

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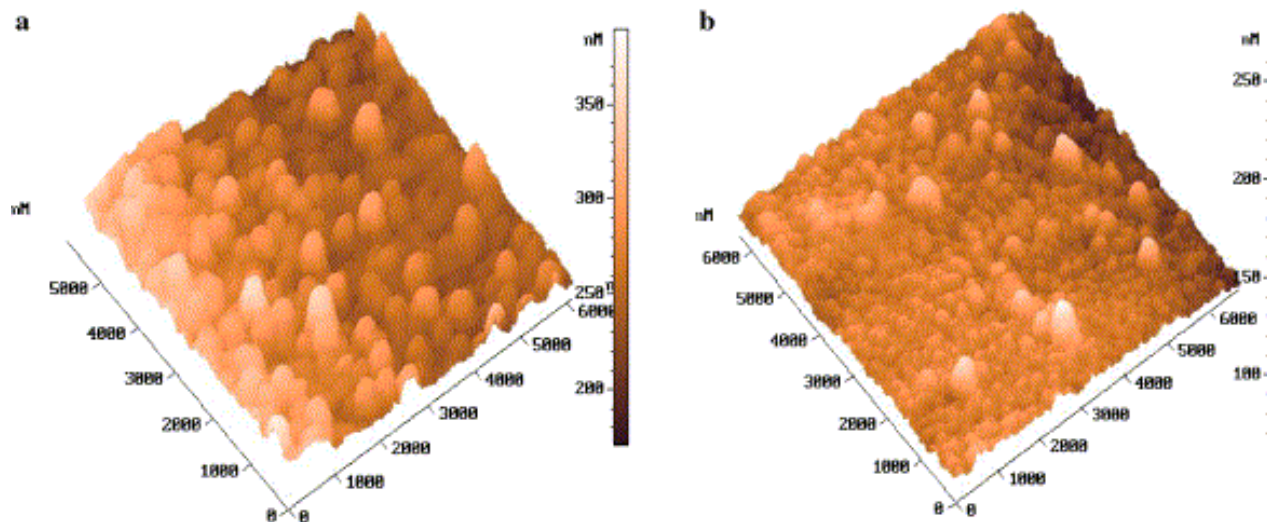


Figure 1. AFM images of Ni-P (a) and Ni-P-ND (b) electroless composite coating 6

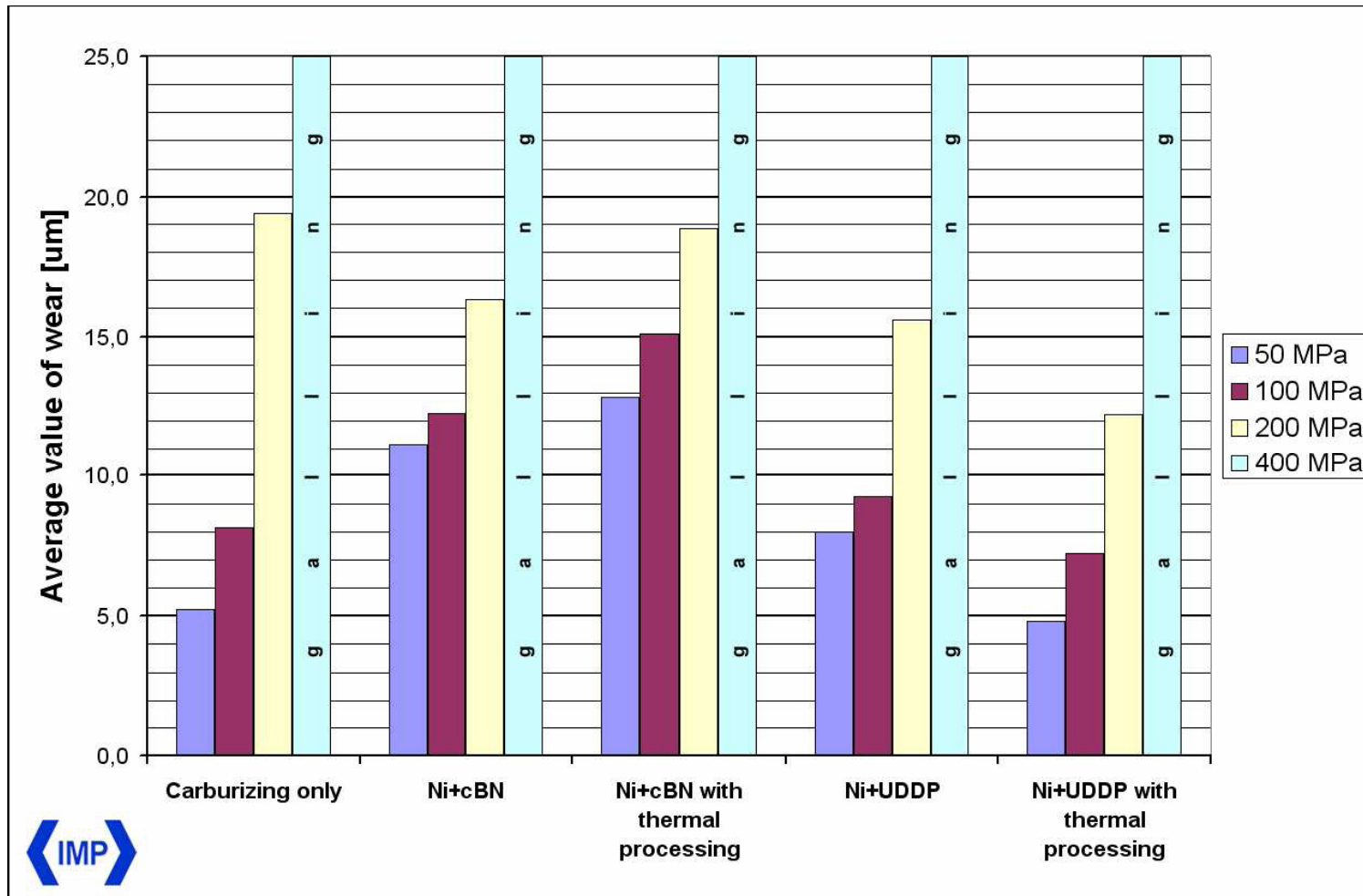
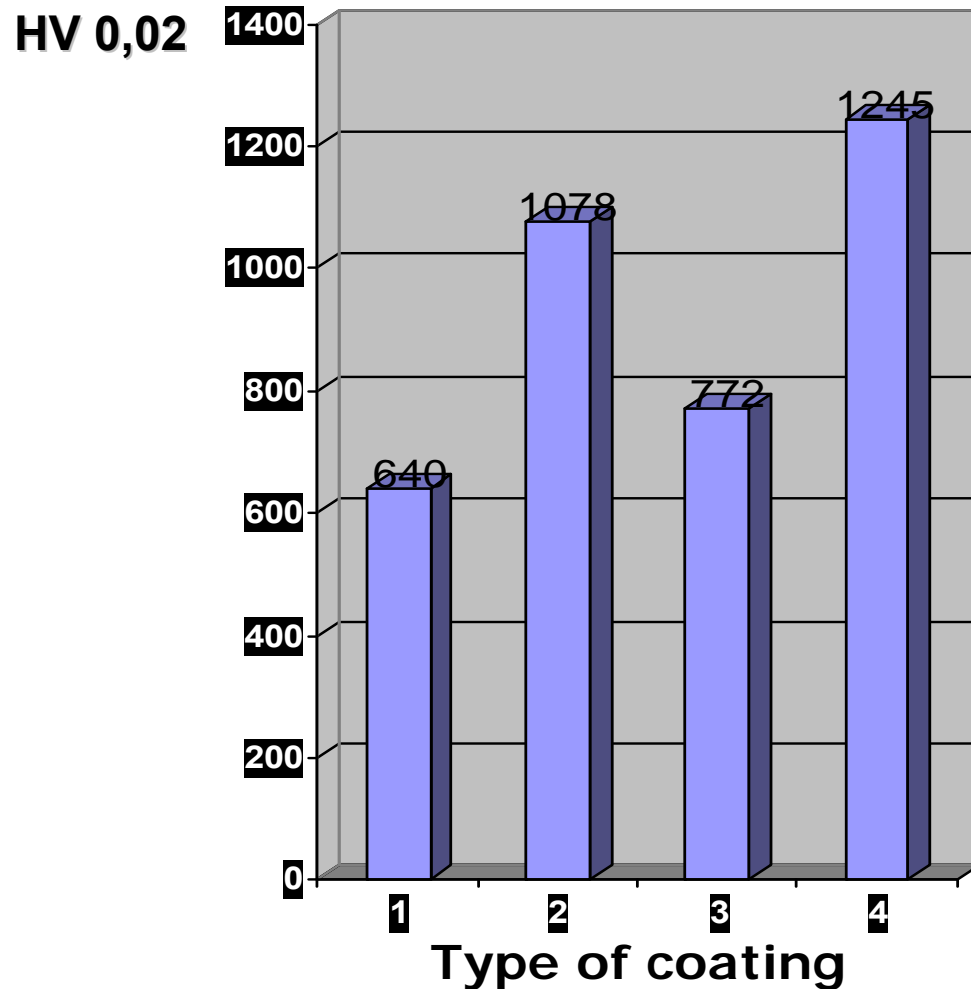


Figure 2: Averages of wear of samples after carburizing and coating with chemical method (under a load of 400 MPa all samples underwent galling) (ND is marked as UDDP)



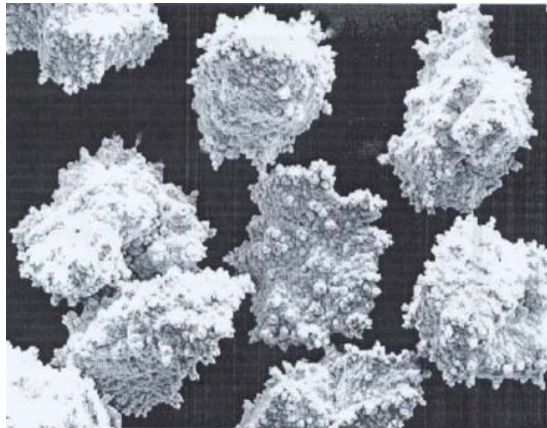
Microhardness Measurements



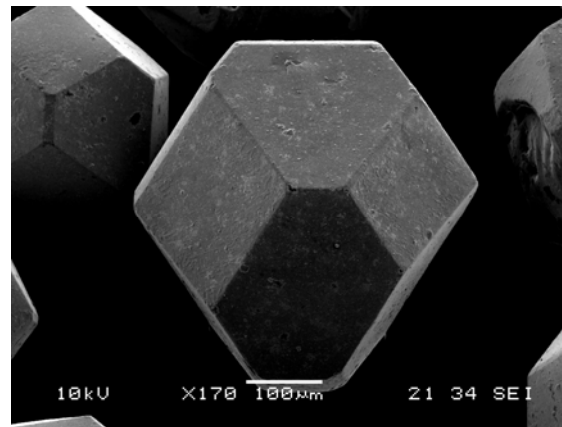
Among all the coating variants, the highest values of hardness were obtained with Ni+ND layer with next thermal processing. It was determined a considerable increase in surface hardness after thermal processing for all specimens coated.

Figure 3: Microhardness of the samples with: **1-Ni+cBN,**
2- Ni+cBN (TP), 3- Ni+ND, 4- Ni+ND (TP)

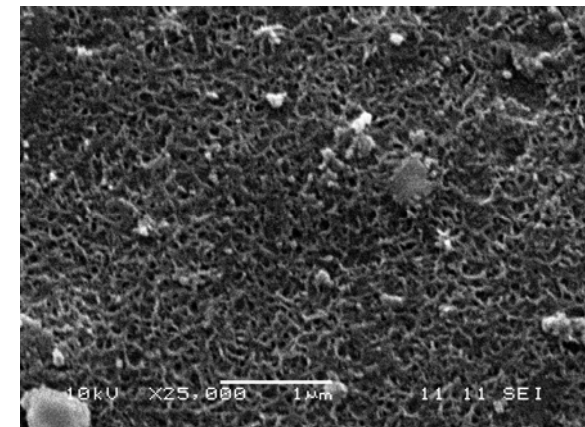
Electroless nickel coating on nano- and microsized particles
a – nanodiamond; b – microdiamond; c – SEM of nickel coating



a



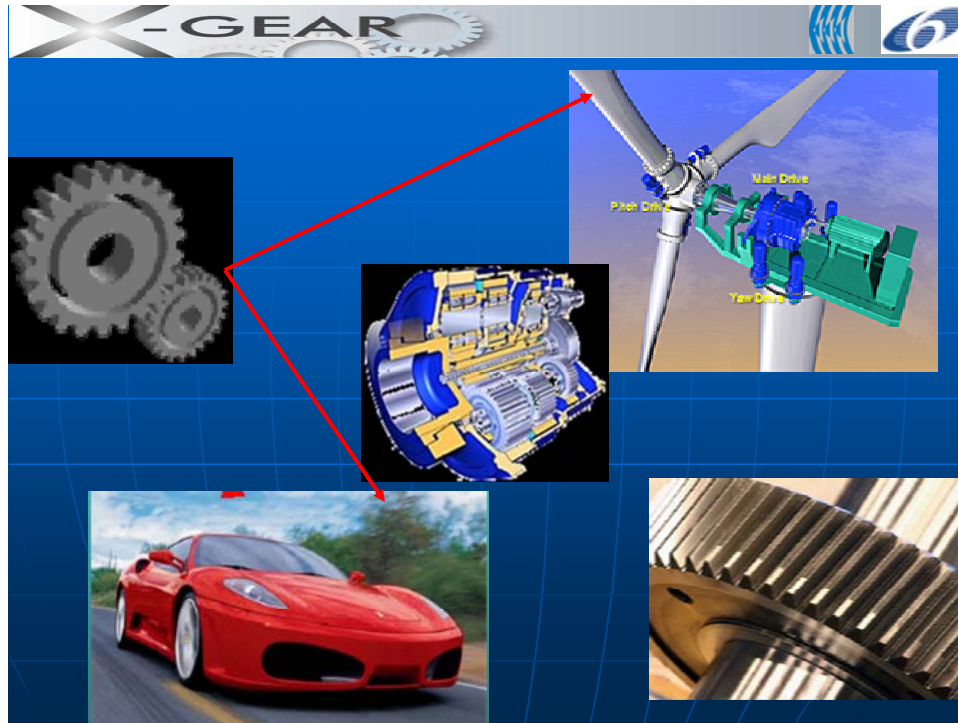
b



c



Applications in Industry



Composite nickel coatings

