

NDT CHARACTERIZATION OF NANO-OXIDE

A.Younes, A.BOUAMER, M.Zergoug

Abstract : Nanostructured materials are current topics in research and development in recent years because of the good mechanical and physical properties compared to crystalline materials. The nanocrystalline coatings may show increased hardness, good mechanical strength, good corrosion resistance and the oxidation resistance, and / or good behavior to friction and wear . In particular, nanostructured materials have good properties in tribology, motor vehicles, heavy machines and cutting tools, etc. that require advanced materials functioning with minimum energy loss. Nanostructured coatings such tribological surfaces for use in contact with harsh conditions were searched intensively for the past decade. PVD and CVD are well known methods for depositing such coatings. However, the drawbacks associated such that the deposition sector size, substrate geometry, cost and complexity of the process often limit their use. In this perspective, the deposit by thermal spraying gives much attention. The different materials Metal, ceramics or cermet , nanostructured coatings were deposited by thermal spraying processes such as HVOF. In addition, the properties of these coatings have been found to strongly depend on the porosity, of the phase distribution, and the residual stress .

Keywords : Nanostructured materials, EDX, MEB, DRX, VSM