

Study on the Surface Coating of CrN for Erosion in Liquid water Drop Test

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As a new approach to substitute for a hard alloy of stellite 6B containing Co which is radioactive in nuclear system, a hard-phase coating of CrN will be applicable to protect 12Cr steel from erosion at leading edge on steam turbine blade. The CrN coating was prepared by arc ion plating on 12 Cr steel and was undertaken in liquid impact test at the velocity of 350m/sec, which simulate the environment in the last stage of blade. The erosion resistance of coating was evaluated by optical observation on damaged surface. The threshold number of impact was closely related with surface hardness. And thus, it was confirmed that surface hardening improves the life time of steam turbine blade.