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研究论文

硫化温度对硫化钨薄膜摩擦性能的影响

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摘要:

采用硫化法以3Cr13马氏体不锈钢为基片制备硫化钨薄膜,研究了硫化温度对薄膜性能的影响.结果表明,硫化温度对硫化钨薄膜的表面形貌和结晶率有明显影响,但对膜层的化学成分影响不大,薄膜能够有效改善不锈钢基体的摩擦学性能.随着硫化温度的升高,摩擦系数降低,测试环境和测试条件对薄膜的摩擦系数也有一定影响.

关键词: 无机非金属材料 二硫化钨 硫化 物相分析 摩擦系数

Effect of sulfurizing temperature on frictional behavior of tungsten disulfide thin film

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Abstract:

Tungsten oxide thin films were prepared on 3Cr13 martensite stainless steel, and then the films were sulfurized in a quartz heating-furnace with quantitative sulfur at 200, 400, 600 and 800 for 4 h. The effect of the sulfurizing temperature on frictional behavior of the tungsten disulfide thin film was studied. The results showed that the sulfurizing temperatures influenced surface topography and crystallization obviously. But the influence on chemical constitution was not obvious. The frictional behaviour of the stainless steel basal plant subjected to be sulfurized was improved. With the increasing of the sulfurizing temperatures, the friction coefficient of the films reduced and the friction coefficient was also influenced by the testing environment and conditions.

Keywords: inorganic non-metallic materials tungsten disulfide sulfuration phase analysis friction coefficient

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