

Nanocomposites and nanomaterials

Effect of chemical vapor deposition on the morphology of the composite layer in a complex method

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Complex method of strengthening surfaces of machines, devices and instruments, consisting of chemical vapor deposition and chemical-thermal treatment forms a nanocomposite coatings of varying morphology. It depends on many components of the method and technological factors. Compounding complex chemical coating methods developed on the basis of [1] is one of the main factors affecting the outcome strengthening.

The influence of chemical coatings related to the implementation mechanism of rare-metal phase (RM-phase). This mechanism is melting the sample surface coated with a chemical coating, so the surface high adsorption capacity and significantly accelerated diffusion processes. Technology of heterogeneous layers of chrome effect based on the use of rare-metal phase, the use of chemical coatings allows several times to intensify the process of diffusion plating on steel 45. Studies have shown that the use of chemical coatings to the same chemical and heat treatment, gave an opportunity to get a new reinforced layer [2-5].

Thus, the mechanism of formation of coatings on the details after a comprehensive restoration by chemical processing and diffusion plating involves the formation of liquid metal phase, which contributes to a zone of primary solid solution of chromium in α -Fe greater thickness and a composite zone and the second zone of a solid solution of chromium in α -Fe.

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