RESEARCH CORROSION RESISTANCE OF STRUCTURAL MATERIALS IN RESIN ENVIRONMENTS

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Due to the difficulties of modeling corrosion processes and environments in the laboratory, the research methodology was based on determining the rate of corrosion in industrial conditions. Samples of various materials with a size of 60 × 60 mm, after degreasing and weighing, were hung in the apparatus of the existing units of the resin shop [1, 2].

After testing, the samples were removed from the apparatus, weight loss was determined and the average corrosion rate was calculated from it. The studied materials were: carbon steel (VSt.3), cast iron (SC15), chromium cast iron, steel 45 with alloy alloy coatings, alloy steels. One of the most effective methods of creating coatings with high mechanical and physicochemical properties are diffusion surface alloying of metal under conditions of self-propagating high-temperature synthesis The technology of obtaining coatings in the conditions of self-propagating high-temperature synthesis, combined with chemical transport reactions, is devoid of these shortcomings and provides high stability of processing results.

Corrosion test results (corrosion rate, mm/year) samples of witnesses in the evaporator of the resin distillery Al – Cr (steel 45) – 0.015, Al – Ti (steel 45) – 0.016, Al – Si (steel 45) – 0.017, 08X13 – 0.01, 12X18H10T – 0.00517. Based on the results it was found that it is possible to replace alloy steels with steel 45 with alloyed Cr, Ti, Si alloy coatings.

The study of the corrosion activity of resin fractions showed that the most aggressive is the anthracene fraction. The rate of corrosion of steel decreases with the height of the column as the temperature decreases, except, perhaps, the naphthalene fraction, where the corrosion rate is higher than in the absorption fraction. This pattern is most likely related to the reactivity of sulfur compounds with increasing temperature and their concentration in the fractions of coal tar.

References

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