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Effect of coating time on the pores of the coating layer by immersing the coated specimen in solution containing Ce-nanopowder

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Surface treatment techniques have attracted much attention both from fundamental and technological point of view. These techniques are used to brighten the surface, increase the strength or improve the corrosion properties. Previous research focused mainly on the improvement of the characteristics by controlling the thickness of the coating layer. Future studies however should focus on improving the properties by controlling the surface shape. In this study, the change of the characteristics of the coating layer with time was observed by immersing a sample made by coating the base material under the same conditions in an aqueous solution containing Ce nanopowder. The SEM analysis of the cross section and the surface of the coating layer revealed that the porosity was lowered as CeO2 was formed in the pores of the coating layer as the immersion time was increased. Also, it was confirmed that the hardness of coating layer measured by Micro hardness test was increased. In addition, the corrosion characteristics were observed by Tafel analysis. It was confirmed that the corrosion resistance increased with increasing time, and flame retardancy was also increased as confirmed by flame retardancy test.

Biography

Min Soo Kim is a graduate of Department of Materials Science and Engineering at Changwon National University in South Korea and is currently pursuing his master's degree at the same university graduate school. We are working on electrolytic plasma coating process and organic and inorganic composite coating materials. We are studying the effect of nano powder on this coating layer. We also participated in many international conferences. We will present a poster about the effect of coating layer over time by immersing specimens coated in solution containing Ce nanopowder.

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