

Impact of Salinity Level on Measured Hardness of Different Paint and Varnish Coatings*

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Abstract

The main problem addressed in this work is the possible impact that the salinity of different environments may have on commercially used paint and varnish coatings. The main motive in conducted studies is to determine the impact of different environments to paints and varnishes hardness. Current literature lacks detailed research on how environmental factors, like exposure to naturally present salt particles can affect their features such as hardness. Research in this area could be helpful as a way to assess the level of possible damage it may be posing to these protective layers. In this research, the damping pendulum method has been used to identify changes to hardness of different coatings. All methods used in studies are based on ISO 1522:2008r. The types used were selected to represent a variety of different uses eg. outdoor house renovation, car coatings, indoor furniture paints, nautical boat coatings, high-temperature-resistant paint, anti-corrosion coatings, as well as nail lacquer. Different chemical composition was considered as a main factor that could have influenced the results. The most resistant to salinity changes, in terms of hardness, were coatings characterized by high solvent content - heat resistant and automotive paint. This proves that exposure to a high salinity environment can have a huge impact on commonly used coatings and resistance to it should be taken into account. Conducted studies shows that different environments have impacts to paints and varnishes coatings.

Keywords: paint hardness, varnish hardness, salinity exposure, changes of hardness,