VALUATION OF MILL SCALE AS IRON PIGMENTS FOR PAINTING ANTICORROSIVE

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Abstract : The mill scale is a steelmaking byproduct. This work focuses on the valuation of the steel waste and its transformation to a usable product in the field of anti-corrosion paints.These iron oxides have been examined as a pigment and corrosion inhibitor in both types of solvent based paints with different concentrations (1%, 3%, 7%, 15%) to determine the best formulation. Their properties were compared to that of an anticorrosion paint trademark based on iron oxide.For this purpose various techniques of mechanical and physical-chemical analysis were used:- Grinding is applied to pieces of mill scale for very fine powders (<32?m);- The particle size of the milled scale analysis, to determine their particle size distribution;- A primary electrochemical method used to evaluate the performance and scale vis-à-vis the phenomenon of corrosion behavior;- A UV-Visible spectroscopic method for determining the concentration of total dissolved iron.The experimental results showed that the anti-corrosion properties or rather inhibition efficiency increases with increasing concentration of the mill scale in the tested paints.Keywords: mill scale, corrosion inhibitor, spectroscopic, electrochemical analysis.

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