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Corrosion Resistance Evaluation Of Coatings Within Large Vehicles Through Prohesion Testing

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**Track 3 Engineered Surfaces**

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**Abstract**

The current research programme is concerned with an array of structural deterioration through aging mechanisms within the museum environment. The Tank Museum at Bovington, South West of United Kingdom, is home to over 300 military tanks which has significant cultural and historic heritage. This collection includes the only running Tiger I tank in the world. These historic artefacts are exposed to aging mechanisms such as corrosion, stress corrosion cracking, fatigue and wear in the interacting surfaces. This paper focuses on surface engineering through application of corrosion resistant coatings. Majority of the Tanks are going through various levels of corrosion failures. Three key military tanks Centaur, M10 and Sherman were selected to perform prohesion (ASTM G85 A5) tests on their bare surfaces. Currently used primer and coating were also subjected to prohesion tests separately. Corrosion accumulation on uncoated surfaces was severe which resulted only after 48 hours of exposure. Primer and coatings demonstrated some degree of corrosion resistance, however, these were subsequently failed as well. Results of corrosion propagation and a comparison between uncoated and coated surfaces are presented. Keywords: corrosion, tiger I, prohesion, military vehicles

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