

## Effects of soil properties on the corrosion progress of X70-carbon steel in tropical region

Kar Sing Lim<sup>a,b</sup>, Nordin Yahaya<sup>b</sup>, Norhazilan Md Noor<sup>b</sup>, Siti Nor Fariza Mior Mohd Tahir<sup>b</sup>, Jeom Kee Paik<sup>c,d</sup> and Mohd Hairil Mohd<sup>e</sup>

<sup>a</sup>Faculty of Civil Engineering and Earth Resources, Universiti Malaysia Pahang, Kuantan, Malaysia; <sup>b</sup>Department of Structure and Materials, Faculty of Civil Engineering, Universiti Teknologi Malaysia, Johor Bahru, Malaysia; <sup>c</sup>The Ship and Offshore Research Institute, The Lloyd's Register Educational Trust Researcher Centre of Excellence, Pusan National University, Busan, Republic of Korea; <sup>d</sup>Department of Mechanical Engineering, University College London, Torrington Place, London, UK; <sup>e</sup>School of Ocean Engineering, Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia

### ABSTRACT

This research aims to investigate the influence of soil engineering properties on the corrosion dynamic and to classify these properties according to the power law constants  $k$  and  $v$ . Fieldwork and laboratory tests were carried out to measure the metal loss influenced by soil properties. Results from fieldwork indicated moisture content as the most influential factor on metal loss. Principal component analysis classified moisture content into constant  $k$ , while plasticity index and particle size are grouped into constant  $v$ . Similar findings were also observed for laboratory tests. As a conclusion, this research has identified moisture content as the most significant governing factor on constant  $k$ , while other soil properties have strong to modest influence on constant  $v$ . This research also reveals the existence of an optimum value of soil properties that influence the highest measured corrosion rate. This finding is significant and may change the way researcher model corrosion behaviour.

### ARTICLE HISTORY

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### KEYWORDS

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