Corrosion of steel under simulated condition of offshore seabed sediment

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ABSTRACT

Steel pipelines subjected to corrosion at any time when placed in adverse environments. Marine sediments are corrosive in nature and can allow severe damage to steel facilities underneath. There had been incidents to indicate the potential of oil and gas pipelines that carry hazardous materials to cause financial damage, environmental issues and pollution. This paper studies the behaviour of corrosion in pipelines steel when placed in seabed sediment environment. Simula-tions on sediment of different characteristics have been carried out to examine their effects on steel coupons buried in them. Consequently, the corrosion rate of the steel specimens were determined via weight loss technique. The results show that metal weight loss increases as the duration of exposure to seabed sediment environment becomes longer. The corrosion order for types of sediment existing in seabed simulated environment is found as follows; fine sand < medium sand < clay < coarse sand. In conclusion, the indoor simulation of seabed sediment can be conducted and is found relatively reliable to explain some corrosion phenomena for a short period studies.

KEYWORDS

Corrosion; Offshore; Pipelines; Seabed sediment; Steel

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