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ENVIRONMENTAL FACTORS AFFECTING CORROSION OF PIPELINE STEEL: A REVIEW

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ABSTRACT

Carbon steel is widely used as pipeline materials in transporting petroleum products from one region to another. However, the pipeline systems are often corroded due to environmental factors which affect the pipeline integrity. Atmospheric corrosion of carbon steel pipeline materials is influenced by many environmental factors which increase the corrosion rate of these steel materials when in operation in different coastal regions. Experiments have been used to investigate the impacts of some of the environmental factors on the corrosion of several carbon steel materials. However, due to cost and time consumption of this process, numerically analyses have been used to complement the understanding of the corrosion process.This paper reviews the latest studies on the impact of environmental factors on corrosion of some carbon steel materials used in the petroleum industry. Some important experimental procedures and results of works done in relation to environmental factors on steel materials are discussed.The review will allow many manufacturers, designer and operators of pipeline carbon steel materials to consider the effect of each environmental factor on the pipeline material and select a better carbon steel material that can withstand the effect of the prevailing environmental factors on the pipeline system.

KEYWORDS: Carbon Steel, Environmental Factors, Hydrogen Sulphide, Temperature, Pipeline