

Abstract Details

Title: Comparison Studies of Sealing Cup Material for Instrumented Pipeline Inspection Gauge

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Abstract: This paper about the material selection or a comparative studies, to selection of material of sealing cup of instrumented pipeline inspection gauge which is used to inspect pipeline in oil/gas industry upto 200 -300 km long without any shutdown of transportation of hydrocarban. These pipelines are buried within the soil upto a depth of 1.5m – 2.5 m traversing various terrains with varying soil resistivity across the world. These pipelines sometimes pass through thickly populated areas carrying highly inflammable products. Regular monitoring of the condition of these pipelines is necessary not only to ensure public health and safety but also to avoid costly and uneconomical shutdowns. The IPIG tools use polyurethane sealing cups for sealing which drives the tool through the pipeline using the fluid pressure. The design of the sealing cup governs the ultimate performance of the tool in terms of providing cutting sealing, resistance to cup wear, buckling, resistance to nose diving. Any abnormal behavior of the sealing cup can result in stuck IPIG within the pipeline calling for emergency shutdown and line repairs. In this study we use finite element method for analysis of stress, strain & wear resistance of sealing cup of same dimension with different grade of polyurethen (PU-650 & PU-652).

Keywords: Polyurethen, IPIG, Sealing Cup, Hydrocarban Pipeline, FEM, Wear Resistance.