

## Failure Pressure Prediction of a Corroded Pipeline Using a Finite Element Method

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**Abstract :** Sonatrach uses 24,000 kilometers of pipelines to transport gas and oil. Over time, these pipes run the risk of bursting due to corrosion inside and/or outside the pipeline. For this reason, a check must be made with the help of an equipped scraper. This intelligent tool provides a detailed picture of all errors in the pipeline. Based on the ERF values, these wear defects are divided into two parts: acceptable defect and unacceptable defect. The objective of this work is to conduct a comparative study of the different methods of calculating the marginal pressure found in the literature (DNV RP F-101, SHELL, P-CORRC, NETTO and CSA Z662). This comparison will be made from a database of 329 burst tests published in the literature. Finally, we will propose a new approach based on the finite element method using the commercial software ANSYS.

**Keywords :** hydrogen embrittlement, pipelines, hydrogen, transient flow, cyclic pressure, fatigue crack growth

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