

## عنوان مقاله:

The Role of Hydrogen Absorption on Mechanical Behavior of X65 and X70 Pipeline Alloy Steel

## محل انتشار:

دومین همایش بین المللی و هفتمین همایش مشترک انجمن مهندسی متالورژی ایران و انجمن علمی ریخته‌گری ایران (سال: 1392)

تعداد صفحات اصل مقاله: 6

## نویسنده:

## خلاصه مقاله:

In the presence of H<sub>2</sub>S, metals, such as carbon and low alloy steels, may suffer hydrogen damage and hydrogen embrittlement. If the amount of H<sub>2</sub>S in gas was high the risk of brittle failure could be increased due to the effect of internal hydrogen absorption on steel toughness. In this paper the influence of hydrogen on mechanical properties of two pipeline materials, X65 and X70 micro-alloyed, was investigated. An electrochemical hydrogen charging method has been setup. Diffusible hydrogen content of steels was in the range of 0.6 to 7.5 ppm. Charpy and stress-strain curves of tensile tests were carried out in room temperature at different charging condition. Hydrogen affects mechanical properties of the tested materials, mainly reducing fracture toughness in tensile tests, while little influence has been observed in Charpy tests. Fracture surface confirmed the results of mechanical tests.

## کلمات کلیدی:

Hydrogen charging; Stress corrosion Cracking; Pipeline Steels; Slow Strain Rate Test

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/223989>

