



## Severe Sour Service

An environment with high concentration of hydrogen exposure, (H<sub>2</sub>S), can potentially diffuse into the steel. This can lead to embrittlement and potentially create inclusions.

Hydrogen Induced Cracking (HIC) can occur where there is a high concentration of hydrogen. This type of cracking can initially appear as a small blister. Atomic hydrogen can form in a wet H<sub>2</sub>S environment and potentially able to diffuse into the steel.

To support applications where there is an exposure to wet/sour service, American Alloy Steel designed our TUF 37 steel plate:

Certified to SA 516-60 / SA 516-65 / SA 516-70.

TUF 37 has the following qualities:

Low Sulfur .002% max

Low CE .37 average for better weldability

Produced to a Fine Grain Practice, Vacuum degassed, and Sulfide Shape Control.

All material is normalized for excellent fracture toughness / high resistance to notch sensitivity for low temperature applications.

Stress Oriented HIC (SOHIC) cracks tend to occur perpendicularly and are driven by stresses – residual or applied – and tend to occur most often around the HAZ (Heat Affected Zone) of a weld. Like HIC Cracking, SOHIC cracking occurs when atomic hydrogen diffuses into equipment and collects at impurities within the steel.

This is more prevalent in acidic / hydrogen rich environments where the H<sub>2</sub>S is over 50 ppm and temperature is under 180 F.