

WI-2284: Warning Statement

Ballot 3031 Comment Resolutions

[Accepted Changes in **Gray-highlight**, Final Changes in **Yellow-highlight**]

Background:

As stated in the **proposed change**, NACE MR0175 is restricted to environments containing H₂S. However, a number of hydrogen embrittlement (HE) failures have been reported since the PH Nickel alloy Shearwater tubing hanger failure in 2001. Many of the high profile HE failures did not involve H₂S. API standards are used by the full range of companies in the supply chain from the more than 100 locations producing CRA raw materials thru to end users. API standards are the best place available to increase awareness of this issue.

Ballot: Modify the warning below (above the “Scope” section) with the **red** text below.

WARNING—It is the purchaser’s responsibility to specify the product specification level (PSL), corrosion-resistant alloy (CRA) group, category, grade, delivery conditions and any other requirements in addition to those specified herewith to ensure that the product is adequate for the intended service environment. ISO 15156 (all parts) or **ANSI NACE MR0175/ISO 15156 should be considered when making specific requirements for H₂S containing environment (see Annex G). ~~Other variables which may contribute to hydrogen embrittlement should be considered.~~ **There are other sources of hydrogen besides H₂S containing environments, which are not addressed by ANSI NACE MR0175/ISO 15156.****

Ballot: Modify the below (in section G.1 General of Annex G for Product specification level 2 (PSL-2)) with the **red** text and paragraph separation below.

WARNING—This International Standard was prepared based on ISO 15156-3:2003. It is the responsibility of the purchaser and the manufacturer to be aware of changes in ISO 15156-3:2003 that occur after the publication of this International Standard. Accordingly, if relevant changes in ISO 15156-3:2003 have been made before the third edition of ISO 13680 is published, then such changes should be included on the purchase agreement to ensure that the product purchased performs satisfactorily in oil and gas production.

The corrosion-resistant alloys (CRAs) selected using ISO 15156-3 or NACE MR0175/ISO 15156 are resistant to cracking in defined H₂S-containing environments in oil and gas production but are not necessarily immune to cracking under all service conditions. It is the equipment user's responsibility to select the CRAs suitable for the intended service. When defining the severity of H₂S-containing environments, exposures that can occur during system upsets or shutdowns, etc., should also be considered. ~~Other variables which may contribute to hydrogen embrittlement should be considered.~~ **There are other sources of hydrogen besides H₂S containing environments, which are not addressed by ANSI NACE MR0175/ISO 15156.**