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DECLARATION OF CONFORMITY

STATEMENT OF INTERNATIONAL STANDARD NACE MR0175/ISO15156 COMPLIANCE

The referenced International Standard NACE MR0175/ISO15156 -Petroleum and Natural Gas Industries – Materials for use in H₂S-containing Environments in Oil and Gas Production standard covers metallic material requirements for resistance to sulfide stress cracking (SSC) for petro-chemical applications to be used in H₂S bearing hydrocarbon service. The increased emphasis on end user responsibility was established to ensure the correct material was being selected for the intended environment. In all parts of the NACE MR0175/ISO15156, the importance of end users responsibility for both material selection and documentation is referenced. Such references are exemplified by NACE MR0175/ISO 15156 2001-1, Clause 6.1: The specification clearly states “Before selecting or qualifying materials using other parts of NACE MR0175/ISO 15156, the **user of the equipment shall** define, evaluate and document the service conditions to which materials may be exposed for each application”

To assist the end user in making this judgment, we will define our interpretations of the Standard with respect to CCS products:

Sour Gas - The standard states “Materials shall be selected to be resistant to SSC or the environment should be controlled if the gas being handled is at a total pressure of 0.4 Mpa (65 psia) or greater and if the partial pressure of H₂S in the gas is greater than 0.0003 Mpa (0.05 psia). Systems operating below 0.4 MPa (65 psia) total pressure or below 0.0003MPa (0.05 psia) H₂S partial pressure are outside the scope of this standard.”

CCS assumed that the above combination of conditions can only occur in the process media and therefore only applies to the wetted materials.

Sour Oil and Multiphases - If the concentration of H₂S is less than 15%, the NACE standard indicates that no SSC will occur below 70 psia (See figure 2 of standard). CCS manufactures all wetted metallic parts from the Austenitic Stainless Steels (Rockwell hardness less than 22c), Inconel 600, Hastelloy C, Monel or Inconel X-750 (Rockwell hardness less than 35c). Again, CCS assumes that the condition for SSC can only occur at the process media wetted materials.

Consideration of environmental limits for SCC and GHSC The cracking mechanisms addressed include:

SCC caused by the presence of chlorides in the H₂S containing environment.

For example, austenitic stainless steels (e.g. 304, 316) will be limited to a maximum service temperature of 60°C (140°F) because of their susceptibility to chloride stress corrosion cracking at higher temperatures. In previous editions, only sulfide stress cracking (SSC) was considered; there were no temperature restrictions.

- GHSC caused by the presence of dissimilar alloys in contact with an H₂S environment.

The following CCS models wetted materials described in CCS Composite Catalog #830G are in compliance with the requirements of International Standard NACE MR0175/ISO15156:

604G*-7029	605G*-7044	6401PE*	646GZE*-7062	6900GC*	6901P*-7038
604G*-7044	605G*-7045	6403GZE*	646PE*-7038	6900GZ*	6903GZ*
604G*-7045	605GZ*-7011	6403PE*	646TE*	6900GZ*-7042	6903P*-7038
604GVZ*	605GZ*-7030	646DZE*	646TUE*	6900GZ*-7043	6905G*-7042
604GZ*-7011	605P*-7038	646GE*	646VZE*-7011	6900GZ*-7054	6905P*
604GZ*-7030	605T*	646G*-7044	672DE*1,2,3	6900GZE*-7066	6905T*
604P*-7038	605TU*	646G*-7045	673DE*Y-8011	6900GZE*-7074	6905TU*
604T*	605VZ*-7011	646GE*-7029	6900G*-7044	6900P*-7038	
604TU*	611GZE*	646GVZ*	6900G*-7045	6900TE*	
604VZ*-7011	611VZ*	646GZE*-7011	6900G*-7058	6900TUE*	
605G*-7029	6401GZE*	646GZE*-7030	6900G*-7059	6901GZ*	

Note: CCS does not have any certification. Considering the explanation given to me by NACE’s technical assistant representative, NACE is a voluntarily adapted standard and therefore NACE does not issue any certification.

I DECLARE THAT THE ABOVE PRODUCTS CONFORM TO THE NACE MR0175/ISO15156.

References

- “Introduction”, NACE MR0175/ISO 15156:1-2009.
- “Changes to NACE Standard MR0175-2009”,
www.nace.org/NACE/Content/technical/MR0175/MR0175Changes.pdf
- “Introduction to ISO 15156 maintenance activities”,
www.nace.org/nace/Content/technical/MR0175/MaintenanceActivities.pdf
- NACE MR0175/ISO 15156 International Standard
- www.iso.org/iso15156maintenance



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Issued	09/18/1996	Rev. C.	01/21/2002
Rev. A	07/30/99	Rev. D.	06/11/2002
Rev. B	01/23/2001	Rev. E	03/21/2004
Rev. F	05/20/2010	Rev. G	11/28/2011
Rev. H	11/28/2011	Rev. J	09/07/2012
Rev. K	12/20/2013		