NACE INTERNATIONAL
THE CORROSION SOCIETY

NACE Standard MR0175-2003
Item No. 21302

Standard
Material Requirements

Metals for Sulfide Stress Cracking and Stress Corrosion Cracking Resistance in Sour Oilfield Environments

Revised 2003-01-17
Approved March 1975
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ISBN 1-57590-021-1

Foreword

This NACE standard materials requirement is one step in a series of committee studies, reports, symposia, and standards that have been sponsored by former Group Committee T-1 (Corrosion Control in Petroleum Production) relating to the general problems of sulfide stress cracking (SSC) and stress corrosion cracking (SCC) of metals. Much of this work has been directed toward the oil- and gas-production industry. This standard is a materials requirement for metals used in oil and gas service exposed to sour gas, to be used by oil and gas companies, manufacturers, engineers, and purchasing agents. Many of the guidelines and specific requirements in this standard are based on field experience with the materials listed, as used in specific components, and may be applicable to other components and equipment in the oil-production industry or to other industries, as determined by the user. Users of this standard must be cautious in extrapolating the content of this standard for use beyond its scope.

The materials, heat treatments, and metal-property requirements given in this standard represent the best judgment of Task Group 081 (formerly T-1F-1) and its administrative Specific Technology Group (STG) 32 on Oil and Gas Production—Metallurgy (formerly Unit Committee T-1F on Metallurgy of Oilfield Equipment).

This NACE standard updates and supersedes all previous editions of MR0175. The original 1975 edition of the standard superseded NACE Publication 1F166 (1973 Revision) titled "Sulfide Cracking-Resistant Metallic Materials for Valves for Production and Pipeline Service," and NACE Publication 1B163 titled "Recommendation of Materials for Sour Service" (which included Tentative Specifications 150 on valves, 51 on severe weight loss, 60 on tubular goods, and 50 on nominal weight loss).

This standard will be revised as necessary to reflect changes in technology. (See Sections 13, 14, and 15.)

Whenever possible, the recommended materials are defined by reference to accepted generic descriptors (such as UNS[1] numbers) and/or accepted standards, such as AISI,[2] API,[3] ASTM,[4] or DIN[5] standards.

In NACE standards, the terms *shall*, *must*, *should*, and *may* are used in accordance with the definitions of these terms in the *NACE Publications Style Manual*, 4th ed., Paragraph 7.4.1.9. *Shall* and *must* are used to state mandatory requirements. *Should* is used to state something considered good and is recommended but is not mandatory. *May* is used to state something considered optional.

This NACE International standard represents a consensus of those individual members who have reviewed this document, its scope, and provisions. Its acceptance does not in any respect preclude anyone, whether he has adopted the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in conformance with this standard. Nothing contained in this NACE International standard is to be construed as granting any right, by implication or otherwise, to manufacture, sell, or use in connection with any method, apparatus, or product covered by Letters Patent, or as indemnifying or protecting anyone against liability for infringement of Letters Patent. This standard represents minimum requirements and should in no way be interpreted as a restriction on the use of better procedures or materials.

[1] Metals and Alloys in the Unified Numbering System (latest revision), a joint publication of ASTM International (ASTM) and the Society of Automotive Engineers Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096.
[2] American Iron and Steel Institute (AISI), 1101 17th St. NW, Suite 1300, Washington, DC 20036.
[3] American Petroleum Institute (API), 1220 L St. NW, Washington, DC 20005.
[4] ASTM International (ASTM), 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.
[5] Deutsches Institut für Normung (DIN), Burggrafenstrasse 6, D-10787 Berlin, Germany.