MR0175 Corrosion Resistant Alloy Exam

Exam Preparation Guide

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Introduction

The MR0175 CRA Exam is designed to assess whether a candidate has the requisite knowledge and skills that a minimally qualified MR0175 Certified User-CRA must possess. The exam comprises 50 multiple-choice questions that are based on the MR0175 Standard (Parts 1 and 3).

Test Name	AMPP MR0175 CRA Exam
Test Code	NACE MR0175-CRA
Time	4 hours
Number of Questions	50
Format	Computer Based Testing (CBT)
Passing Score	Pass/Fail

Target Audience

An MR0175 Certified User-CRA is recognized as persons working in the following areas:

- User oil and gas production equipment
- Equipment designers
- Manufacturers, suppliers and purchasers
- Construction and maintenance contractors
- Equipment operators
- Industry regulators

Requirements

MR0175-CRA

Requirements for MR0175-CRA: 1 Core Exam

Work Experience Requirements:
Two (2) years relevant experience (documented) and a degree in one of the following: metallurgy, material science, chemical engineer, applied chemistry, mechanical engineer, corrosion OR Five (5) years relevant experience, including 2 years of responsible charge.
Core Exam Requirements:
The following exam is required:
MR0175 CRA Exam

Certification Application is required - An application must be submitted prior to taking the examination to allow time for AMPP to verify work experience requirements. The application is subject to approval.

Certification renewal requirements – Recertification application* required every 3 years – including the following:

- A minimum of 1.5 years of CRA sour service work experience
- A completed re-certification application (subject to approval)
- A minimum of 20 Professional Development hours (PDHs) per year/60 PDHs every 3 years

Upon successful completion of all requirements, the candidate will be awarded a MR0175 Certified User-CRA.

***Approval required**

Knowledge and Skills Areas Tested

DOMAIN	Percent of Items
1. Understanding the significance of sour service, and the roles and responsibilities for the selection of materials for use under such conditions.	8 - 12 %
2. Evaluation, & definitions of service conditions to enable materials selection	8 - 12 %
3. Understanding how personnel work together: purchasing, project engineers, consulting, and others to consider all factors in materials selection, to define roles and responsibilities with respect to information gathering evaluation, and execution of materials selection	12 - 16 %
4. Basic understanding of the materials types included in the standard	8 - 12 %
5. Understanding and demonstrating compliance with metallurgical properties that govern the behavior of materials in H2S containing environments	10 - 14 %
6. Understanding the significance of changes to materials brought about by fabrication on their resistance to H2S, and their measurement.	6 - 10 %
7. Basic Understanding of the oil/gas equipment/components included in the standard	4 - 8 %
8. Understanding/auditing the process of materials selection for sour service using the standard	12 - 16 %
9. Basic understanding of laboratory testing methods	8 - 12 %
10. Applying the standard to respond to case studies similar to those provided in the examination's study resources	4 - 8 %

Types of Questions

Description of Questions

The questions on this exam are multiple-choice and based on the knowledge and skills required in the industry for a certified user of the MR0175 Standard-CRA. While the AMPP MR0175 Seminar is an excellent method of preparation, it is **strongly recommended** but not required. The primary reference used in the development of the questions is the MR0175 Standard. Additional references can be found in the Reference section.

The sample questions are included to illustrate the formats and types of questions that will be on the exam. Your performance on the sample questions should not be viewed as a predictor of your performance on the actual test.

1. When qualifying ferritic stainless steels for H_2S service in accordance with NACE Standard MR0175/ISO 15156, which are the potential cracking mechanisms to be primarily considered?
    a. HIC, SSC, SCC and GHSC
    b. SOHIC, SSC and GHSC
    c. SSC and GHSC
    d. SCC and GHSC

2. You are looking at materials for components in a sour fluid containing 12kPa H_2S and 170,000mg/L chloride at 180°C. You are considering superduplex stainless steel but are concerned that it might suffer from crevice corrosion in your application. Which statement best represents the position of the standard?
    a. Superduplex stainless steel is acceptable
    b. Superduplex stainless steel is acceptable with a crevice corrosion resistance test
    c. The standard is not concerned with crevice corrosion
    d. Superduplex stainless steel is not acceptable for this service

Answer Key

1. C
   Reference: Table B.1
2. C
   Reference: 1 Scope Para 3

Preparation

Training (Strongly Recommended)

One-day MR0175 Workshop

Designed to help you and your company prevent corrosion stress cracking in H2S containing oil production environments, attend a MR0175/ISO 15156 One-Day Seminar to understand how the standard can be implemented to improve the quality of your company's assets and what you can do to comply with the standard. MR0175/ISO 15156 is the premier standard to reference in combating corrosion cracking through material selection and qualification and the seminar is for anyone from entry level to experienced oil production professionals to gain a thorough knowledge of this globally mandated standard.

Suggested Study Material

NACE MR0175/ISO 15156 Standard
EFC 17
NACE TM0177
NACE TM0198
NACE TM0316

Books

Introductory Handbook for MR0175

Other

Materials Performance magazine

Reference Material Electronically Provided During the Exam

MR0175 Standard/ISO 15156 Standard (2015)

MR0175/ISO 15156 Technical Circular (2016)