

NACE 国际课程介绍

保温层下腐蚀 (CUI)

Corrosion Under Insulation (CUI)

保温层下腐蚀是一种严重的发生在外部的局部腐蚀，最常见于有保温层的碳钢和低合金钢，以及服役环境温度最高不超过 80C (175F) 的不锈钢。

Corrosion under insulation (CUI) is a severe form of localized, external corrosion that most commonly occurs on insulated carbon and low alloy steel and stainless steel equipment that operate at high temperatures at or below 175°F.

保温层下腐蚀 (CUI) 在化工/石化，炼化，海工和海事领域非常普遍。如果保温层下腐蚀没有被及时发现，将会造成一系列的问题比如灾难性的泄露或爆炸，设备会失效，后续的修复或置换会延长停工时间，以及安全和环境的问题。

CUI is most prevalent in the chemical/petrochemical, refining, offshore, and marine/maritime industries. If left undetected, CUI can result in catastrophic leaks or explosions, equipment failure, prolonged downtime due to repair or replacement, and safety and environmental concerns.

此课程从理论和实践两方面介绍了保温层下腐蚀的防护，管理和检验。

This course introduces the theoretical and practical aspects of preventing, managing and inspecting CUI.

参加人员

Who should attend

此课程的设计适用于工作领域与 CUI 相关的人士，包括但不限于以下职位：

The course was designed to be applicable for anyone working within an industry affected by CUI. Job titles may include but are not limited to:

- 规格书和设计工程师
Specifiers and Designers
- 金属，涂层和基于风险控制的检验员
Metals, Coatings and Risk Based Inspectors
- 涂装施工方
Coating Contractors
- 维护保养人员和项目工程师
Maintenance personnel and project engineers
- 保温材料和设备的制造商
Manufacturers of insulation materials and equipment
- 与 CUI 相关的部门经理
Unit managers involved in CUI

学习目的

Learning objectives

- 解释什么是 CUI，包括典型 CUI 系统的组成，为什么行业需要 CUI 系统。
Explain what CUI is, including the components of a typical CUI system and why it is required in a range of industrial settings
- 介绍在选择 CUI 系统时，实验室测试的重要性
Explain the importance of lab testing on the selection of CUI system components
- 定义防护涂层系统在 CUI 保护中的作用，概述选择保温层下适用涂料的影响因素
Define the role protective coatings play in the prevention of CUI and outline the factors that need to be considered when selecting a coating for application under insulation
- 掌握保温层下常用防护涂层类型，描述他们的优缺点
Identify the common types of coatings applied under insulation and describe their advantages and disadvantages
- 概述选择保温层的影响因素
Outline the factors that need to be considered when selecting insulation
- 描述保温层类型和 CUI 防护系统常用的包壳
Describe the types of insulation and jacketing commonly used within CUI Protective Systems
- 描述不同喷涂类型的保温层和各自的优缺点
Describe the different types of spray-on insulation and their advantages and disadvantages
- 掌握何时需要使用被动防火保护，概述采用适当的措施将防火层下腐蚀的可能性降至最低
Identify when passive fire protection is required and outline the steps to minimize the likelihood of corrosion under fireproofing occurring
- 总结膨胀型防火涂层，高密度混凝土防火涂层和水泥基防火涂层之间的区别
Summarize the differences between intumescent coatings, high density concrete coatings and cementitious coatings
- 解释降低 CUI 所需的常规的设计要求
Explain common design practices used to minimize CUI
- 概述安装 CUI 防护系统的常规程序
Outline the common steps involved in installing a CUI Protective System
- 识别安装保温层，包壳，扎带，汽障壁，密封出入点过程中常见错误
Recognize common mistakes made during the application of insulation, jacketing, banding, vapor barriers and when sealing entry/exit points
- 认识到基于风险的检验项目的关键组成，描述在 CUI 背景下各自的优势
Identify the key components of risk-based inspection programs and describe their benefits within a CUI context

- 描述在保留 CUI 防护层和去除 CUI 防护层情况下不同的检验方法
Discuss the inspection methods that can be utilized with and without the removal of the CUI Protective System

其它

Others

授课时长为 4 天，第 5 天为实践操作考试，完成课程后会授予课程证书。