



AMERICAN PETROLEUM INSTITUTE

API Recommended Practice 583

Corrosion Under Insulation and Fireproofing

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This recommended practice (RP) covers the design, maintenance, inspection, and mitigation practices to address external corrosion under insulation (CUI) and corrosion under fireproofing (CUF). The document discusses the external corrosion of carbon and low alloy steels under insulation and fireproofing and the external chloride stress corrosion cracking (ECSCC) of austenitic and duplex stainless steels under insulation. The document does not cover atmospheric corrosion or corrosion at uninsulated pipe supports but does discuss corrosion at insulated pipe supports.

The purpose of this RP is to:

- help owner/users understand the complexity of the many CUI/CUF issues;
- provide owner/users with understanding on the advantages and limitations of the various nondestructive examination methods used to identify CUI and CUF damage;
- provide owner/users with an approach to risk assessment (i.e. likelihood of failure and consequence of failure) for CUI and CUF damage; and
- provide owner/users guidance on how to design, install, and maintain insulation systems to avoid CUI and CUF damage.

The practices described in this document apply to pressure vessels, piping, and storage tanks and spheres. The document discusses the factors impacting the damage mechanisms, the guidelines to prevent external corrosion/cracking under insulation, the maintenance practices to avoid damage, the inspection practices to detect/assess damage, and the guidelines for risk assessment of equipment or structural steel subject to CUI and CUF damage.

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