

أرامكو السعودية
Saudi Aramco



Protective Coating Standards for Pipeline

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Outline

- **Standards scope and definition**
- **Benefits**
- **Standards limitations and Restrictions**
- **Conformances and Non-Conformances**
- **Waiver Standards**
- **Document Responsibilities & Liabilities**
- **Summary**

Definition of The Scope

Pipeline Coating Standards provide the user with the minimum mandatory requirements and guidelines of the best practices to specify the appropriate use of protective coatings to prevent corrosion when applied with conjunction with other approved corrosion control means.

Limitations of the Standards

- **Can not be used as a single source to write engineering specifications**
- **Have time limit and expiry date**
- **Must Have Cross References**

Common Standards Used for Pipeline

Std Name	Custodian	Title
SAES-H-002 (rev. Sept05)	S. Aramco	Internal & External Coatings for Steel Pipelines and Piping
SAES-H-201	S. Aramco	Specification for Over-the-Ditch External and Internal Girth Weld FBE Coating
ISO 21809-2	ISO-TC67	External coatings for buried and submerged pipelines used in pipeline transportation systems
RP0394-02	NACE	Application, Performance, and Quality Control of Plant applied FBE - External Pipe Coating

Common Standards Used for Pipeline

Std Name	Custodian	Title
RP0402-02	NACE	Field –Applied FBE Pipe Coating Systems for Girth Weld Joints (Application, Performance, and QC)
RP0105-05	NACE	Liquid epoxy Coatings for External Repair, Rehabilitation, and Weld Joints on Buried Steel Pipelines
GBE/CW6: Part 2	Gas Business Engineering	Technical Specifications for External Protection of Steel Line Pipe Using FBE at Factory Conditions

Coating Materials Qualifications (Coating Selections)

- **Properties**
- **Performance**
- **Coating Procedure Approval (Coating Ability)**

Benefits of using Standards

- **Provide Technical Boundaries for Services & Products Qualification**
- **Maintain Reproducibility**
- **Reference to Quality Control & Assurance**
- **Principal Attachment to Purchase Orders, Services & Products Agreements, and Projects Specifications**
- **Technical & Engineering Indemnity & Arbitration**

Coating Process Procedure

- **Storage & Handling**
- **Surface Preparation**
- **Coating Application**
- **Inspection & Testing**
- **Defects Repairs**
- **Quality Control**
- **Handling of coated Pipes**

Conformance with the Standard Requirements

- **Inspection Authority**
- **Variations within the Guidelines**
- **Concurrences**

CUT BACK ON PIPE ENDS



Testing Concrete Weight Coat for Impact



Testing Concrete Weight Coat for Impact



Testing Concrete Weight Coat for Slippage



Damage During Installation



Damage During Installation



WAIVER...Its Impact on a Standard Document

- **Standard Inaccuracy or Ambiguity**
- **Legal and Statutory Obligations**
- **Health & Safety Issues overruling**
- **Standards Quality Indicators**

Bad Handling Practice During Installation



Bad Handling Practice During Installation



Bad Handling Practice During Installation



Bad Handling Results Premature FBE Failures



Costly RehabilitationWhy??



THANK YOU