

# DEP SPECIFICATION

## SYNTACTIC FOAM INSULATION FOR FLOWLINES

DEP 37.81.40.30-Gen.

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### DESIGN AND ENGINEERING PRACTICE



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## 1. INTRODUCTION

### 1.1 SCOPE

This new DEP specifies requirements and gives recommendations for the application of thermal insulating coatings on flowline pipe using syntactic foam materials.

This DEP governs material selection, preparation of surfaces, application of thermal insulation coatings, inspection and coating repair.

This is a revision of the DEP of the same number dated February 2012; see (1.5) regarding the changes.

### 1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to Contractors and Manufacturers/Suppliers nominated by them. Any authorised access to DEPs does not for that reason constitute an authorisation to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in facilities related to oil and gas production. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process shall be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable with regards to the safety, environmental, economic and legal aspects. In all cases, the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned, the objective being to obtain agreement to follow this DEP as closely as possible.

### 1.3 DEFINITIONS

#### 1.3.1 General definitions

The Contractor is the party that carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may undertake all or part of the duties of the Contractor.

The Coating Contractor is the party that has responsibility for the design, qualification, application, inspection and quality assurance of the syntactic foam system (including corrosion protection coatings and insulating foam).

The Manufacturer/Supplier is the party that manufactures or supplies equipment, materials and services to perform the duties specified by the Coating Contractor.

The Principal is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

The word **may** indicates a permitted option.

### 1.3.2 Specific definitions

| Term                  | Definition                                                                                                                              |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ambient</b>        | Environmental conditions in the immediate area of coating application work and upon surfaces being coated.                              |
| <b>Applicator</b>     | Company doing the coating/ insulation application.                                                                                      |
| <b>Batch</b>          | Quantity of surface preparation and coating/ insulation materials manufactured at one (1) time and identified by a unique batch number. |
| <b>Coating System</b> | Refers to the combination of the insulation and corrosion protection coatings.                                                          |

### 1.3.3 Abbreviations

| Term        | Definition                                        |
|-------------|---------------------------------------------------|
| <b>AFC</b>  | Approved For Construction                         |
| <b>FBE</b>  | Fusion-Bonded-Epoxy, (thin film thermoset epoxy). |
| <b>ITP</b>  | Inspection and Test Plan                          |
| <b>MP</b>   | Manufacturing Plan                                |
| <b>NIST</b> | Nominal Insulation System Thickness               |
| <b>QA</b>   | Quality Assurance                                 |
| <b>QC</b>   | Quality Control                                   |
| <b>QP</b>   | Quality Plan                                      |
| <b>SCP</b>  | Standard Coating Procedure                        |

## 1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets ( ). Other documents referenced by this DEP are listed in (12).

## 1.5 SUMMARY OF MAIN CHANGES

DEP 31.40.30.39-Gen. was a conversion from DEP 31.40.30.39-DWP dated October 2006, there were no significant non-editorial changes.

This DEP is a revision of the DEP of the same number dated February 2012. The changes followed a requirements quality review and were not a full technical update. The following are the main, non-editorial changes.

| Section/Clause | Change                                                                                              |
|----------------|-----------------------------------------------------------------------------------------------------|
| All            | Restructured and clarified requirements, enforced use of shall/should/may for normative statements. |

## 1.6 COMMENTS ON THIS DEP

Comments on this DEP may be submitted to the Administrator using one of the following options:

|                                                                      |                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shell DEPs Online</b><br>(Users with access to Shell DEPs Online) | Enter the Shell DEPs Online system at <a href="https://www.shelldeps.com">https://www.shelldeps.com</a><br><br>Select a DEP and then go to the details screen for that DEP.<br><br>Click on the "Give feedback" link, fill in the online form and submit.             |
| <b>DEP Feedback System</b><br>(Users with access to Shell Wide Web)  | Enter comments directly in the DEP Feedback System which is accessible from the Technical Standards Portal <a href="http://swwww.shell.com/standards">http://swwww.shell.com/standards</a> .<br><br>Select "Submit DEP Feedback", fill in the online form and submit. |
| <b>DEP Standard Form</b><br>(other users)                            | Use DEP Standard Form 00.00.05.80-Gen. to record feedback and email the form to the Administrator at <a href="mailto:standards@shell.com">standards@shell.com</a> .                                                                                                   |

Feedback that has been registered in the DEP Feedback System by using one of the above options will be reviewed by the DEP Custodian for potential improvements to the DEP.

## 1.7 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

## 1.8 NON NORMATIVE TEXT (COMMENTARY)

Text shown in italic style in this DEP indicates text that is non-normative and is provided as explanation or background information only.

*Non-normative text is normally indented slightly to the right of the relevant DEP clause.*

## 1.9 DOCUMENT PRIORITY

In the event of conflicts between Contract documents, AFC Drawings, Specifications and other referenced standards, the following document priority shall apply:

Contract or Agreement (including any approved exceptions);

AFC Drawings-Latest Revision;

Principal Specifications (including project specific data sheets);

Referenced Standards and Specifications.

The thermal insulation data sheet(s) summarizes the nominal dimensional data and thermal design data for the preferred insulating coating. Literature data has been used for the thermal conductivity of the coating materials. If Coating Contractor has reason to believe that one or more of these values are not representative values for the material properties, then they should propose values representing the correct material properties (and provide back-up documentation) and the corresponding dimension to meet the thermal requirements of this DEP.

1. Any lawful government regulations or requirements, which result in more stringent requirements, shall supersede all other specified requirements. In the event of conflict between any of the applicable documents, the more stringent requirement shall govern.