

DEP SPECIFICATION

DESIGN AND INSTALLATION OF CHEMICAL-RESISTANT PROTECTION SYSTEMS FOR CONCRETE SURFACES

DEP 30.48.60.12-Gen.

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DESIGN AND ENGINEERING PRACTICE



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- 3) Contractors/subcontractors and Manufacturers/Suppliers under a contract with users referred to under 1) or 2) which requires that tenders for projects, materials supplied or - generally - work performed on behalf of the said users comply with the relevant standards.

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All administrative queries should be directed to the DEP Administrator in Shell GSI.

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1. INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for the design, installation, and inspection of chemical-resistant protection systems for concrete surfaces used in the petroleum, chemical and gas industries.

This DEP covers the following chemical resistant protection systems:

- Organic coating systems on concrete components.
- Linings on concrete components.
- Combined systems with tile and brick layers.

Excluded from the scope of this DEP refractory materials, chemical resistant unshaped refractory materials used for monolithic lining systems, for which reference is made to DEP 44.24.32.30-Gen.

Also excluded from this DEP are linings composed solely of a rubber or plastic membrane that are not part of a combined concrete protection system as described herein.

This DEP does not cover the design of refractory linings to be used for underground sulphur storage tanks for Sulphur Recovery Units.

This DEP uses and compliments clauses and content from EN 14879 parts 1 3 5 and 6 as well as ACI 201.2R and ACI 515.2R and is intended to be used in conjunction with these specifications (depending on which normative standards apply to the project).

This is a revision of the DEP of the same number dated February 2017, 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 refineries, chemical plants, gas plants, and, where applicable, in supply/marketing installations and exploration and production facilities. 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 **Manufacturer/Supplier** is the party that manufactures or supplies equipment and services to perform the duties specified by the 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
Applicator	The Applicator is the party that applies the coating.
Coating Material	Liquid to paste like materials applied mainly by means of trowel, brushing, rolling or spraying.
Combined System	Typically, these systems are called acid-proof brick or chemical resistant masonry unit systems or brick lining systems. Such systems comprise a sealing layer and a service layer. Taken together, the two layers provide a more effective protection than each layer would provide on its own.
Construction Joint	Joint in a building or building element caused by interruption during the casting of the concrete.
Jointless Systems	Collective term for coating materials and monolithic linings (e.g., not compound systems).
Lining	Plastic or rubber applied as sheets or plates which might be bonded to the substrate.
Monolithic Lining	Lining formed from unshaped materials (plastic, castable) without joints other than for designed panels or for control of cracks and expansion.
Pot Life	Time during which the coating material can be readily used.

1.3.3 Abbreviations

Term	Definition
ITP	Inspection and Test Plan
SSPC	The Society for Protective Coatings

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 in this DEP are listed in (7).

1.5 SUMMARY OF MAIN CHANGES

This DEP is a full revision of the DEP of the same number dated February 2017. The following are the main, non-editorial changes.

Section/Clause	Change
Title and Scope	Addition of North American standards as an alternative to EN standards.
1.3.2	Added definitions to clarify materials.
Section 2	Removed from the document the text related to material selection.
Section 3	Renamed this section. Removed content constraining the design to allow a more functional approach to design requirements.
Section 4	Removed statements overly constraining the solution to allow a more system approach. Added requirements to put the required system dependence on meeting the Manufacturer/Supplier's requirements.
Sections 5 and 6	Added requirements to put the required system dependence on meeting the Manufacturer/Supplier's requirements. Reworded to permit this section to apply to coatings as well as combined systems.

1.6 COMMENTS ON THIS DEP

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

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

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.