ISO 21809-1:2011-07 (E)

Petroleum and natural gas industries - External coatings for buried or submerged pipelines used in pipeline transportation systems - Part 1: Polyolefin coatings (3-layer PE and 3-layer PP)

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Conformance 1
2.1 Rounding 1
2.2 Compliance to standard 1

3 Normative references 1

4 Terms and definitions 3

5 Symbols and abbreviated terms 6
5.1 Symbols 6
5.2 Abbreviations 6

6 Information supplied by the purchaser 7
6.1 General information 7
6.2 Additional information 7

7 Coating classification 8
7.1 General 8
7.2 Coating classes 8
7.3 Coating thickness classes 8

8 Coating materials 9
8.1 Composition of the coating system 9
8.2 Qualification of the coating materials 9
8.3 Batch certificate 11
8.4 Storage and handling of coating materials 13

9 Coating system qualification 13
9.1 General 13
9.2 Application procedure specification 13
9.3 Procedure qualification trial 15
9.4 Inspection and testing plan 15

10 Application of the coating system 15
10.1 Surface preparation 15
10.2 Coating application 16
10.3 Cutback 16

11 Inspection and testing 17
11.1 General 17
11.2 Retesting 18

12 Coating repairs 19

13 Marking 19
13.1 General 19
13.2 Required markings 19

14 Handling and storage in the applicators facilities 19
14.1 Handling 19
14.2 Storage 20

15 Test reports and certificate of compliance 20

Annex A (normative) Inspection of thickness 21

Annex B (normative) Holiday detection test 22

Annex C (normative) Peel strength test 23

Annex D (normative) Thermal analysis of epoxy and cured epoxy coating film 28

Annex E (normative) Impact test 33

Annex F (normative) Indentation test 35

Annex G (normative) UV ageing test and thermal ageing test 36

Annex H (normative) Cathodic disbondment test 39

Annex I (normative) Flexibility test 43

Annex J (normative) Gel time of the epoxy powder 45

Annex K (normative) Total volatile/moisture content of the epoxy powder -- Mass loss 47

Annex L (normative) Procedure qualification trial, inspection and testing plan and daily log 49

Annex M (normative) Hot water immersion test 50

Annex N (normative) Density of epoxy powder 52

Bibliography 54