

ISO 21809-3:2008-12 (E)

Petroleum and natural gas industries - External coatings for buried or submerged pipelines used in pipeline transportation systems - Part 3: Field joint coatings

Contents		Page
Foreword		vi
Introduction		vii
1	Scope	1
2	Normative references	1
3	Terms and definitions	4
4	Symbols and abbreviated terms	6
4.1	Symbols	6
4.2	Abbreviated terms	7
5	General requirements	7
5.1	Rounding	7
5.2	Compliance to standard	7
6	Information to be supplied by the purchaser	8
6.1	General information	8
6.2	Additional information	8
7	Application procedures and qualification	9
7.1	Application procedure specification (APS)	9
7.2	Coating materials	9
7.3	Procedure qualification trial (PQT)	10
7.4	Pre-production trial (PPT)	11
7.5	Qualification of coating and inspection personnel	11
7.6	Production testing and inspection	11
7.7	Certificates of compliance and traceability	12
8	Classification of field joint coatings	12
9	General requirements for surface preparation, coating application, testing and repair	13
9.1	Surface preparation	13
9.2	Application of the coating	14
9.3	Visual inspection of the applied coating	14
9.4	Testing of the field joint coating	14
9.5	Repairs	15
9.6	Verification and storage of coating materials	15
10	Bituminous, petrolatum, wax and polymeric tape coatings	15
10.1	Coating identification	15
10.2	Description of the coatings	15
10.3	Surface preparation	15
10.4	Coating application	16
10.5	Testing of the applied coatings	17
11	Heat-shrinkable coatings	25
11.1	Coating identification	25
11.2	Description of the coatings	25
11.3	Surface preparation	26

11.4	Application of the coatings	26
11.5	Testing of the applied coatings	27
12	Fusion-bonded epoxy (FBE) powder coatings	31
12.1	Coating identification	31
12.2	Description of the coatings	32
12.3	Surface preparation	32
12.4	Application of the coatings	32
12.5	Testing of the applied coatings	33
13	Liquid coatings	35
13.1	Coating identification	35
13.2	Description of the coatings	35
13.3	Surface preparation	35
13.4	Application of the coatings	36
13.5	Testing of the applied coatings	36
14	Polyolefin-based coatings	41
14.1	Coating identification	41
14.2	Description of the coatings	41
14.3	Surface preparation	42
14.4	Application of the coating	43
14.5	Testing of the applied coatings	44
15	Thermal spray aluminium (TSA) coatings	49
15.1	Coating identification	49
15.2	Description of the coating	49
15.3	Qualification	49
15.4	Surface preparation	49
15.5	Application of the coating	49
15.6	Testing of the applied coating	50
16	Hot-applied microcrystalline wax coatings	51
16.1	Coating identification	51
16.2	Description of the coating	52
16.3	Surface preparation	52
16.4	Application of the coating	52
16.5	Testing of the applied coatings	53
17	Elastomeric coatings	54
17.1	Coating identification	54
17.2	Description of the coatings	55
17.3	Surface preparation	55
17.4	Application of the coatings	55
17.5	Testing of the applied coatings	56
Annex A (normative) Inspection of thickness		60
Annex B (normative) Holiday detection test		61
Annex C (normative) Adhesion test -- Resistance to removal		62
Annex D (normative) Peel-strength test		64
Annex E (normative) Thermal analysis of epoxy powder and cured coating film (FBE)		68
Annex F (normative) Cathodic disbondment test		72
Annex G (normative) Impact test		78
Annex H (normative) Indentation test		80
Annex I (normative) Hot-water immersion test		82
Annex J (normative) Drip resistance of petrolatum and wax tapes		84
Annex K (normative) Specific electrical insulation resistance		85

Annex L (normative) Lap shear strength	87
Annex M (normative) Peel strength between layers	89
Annex N (normative) Thermal ageing resistance	92
Annex O (normative) Test programmes for procedure for qualification trials, pre-production trials or production testing	96
Bibliography	99