

ISO 3845:2024-05 (E)

Oil and gas industries including lower carbon energy - Full ring ovalization test method for the evaluation of the cracking resistance of steel line pipe in sour service

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Symbols and abbreviated terms	6
5	Principle	6
6	Reagents	7
7	Apparatus	8
7.1	Containment materials	8
7.1.1	General	8
7.1.2	Lid and base	8
7.1.3	Seal rings	8
7.2	Internal loading components	8
7.3	External loading components	10
7.4	Loading component treatment	11
7.5	Ancillary components	11
8	Sampling	12
8.1	General	12
8.2	Ultrasonic testing	12
8.3	Magnetic particle testing/penetrant testing	12
9	Procedure	12
9.1	General	12
9.2	Test specimen	12
9.2.1	Machining/Preparation	12
9.2.2	Surface preparation	13
9.2.3	Specimen loading	13
9.3	Preparation of the test cell	17
9.4	Test duration and solution parameters	17
9.5	Test commencement	18
9.6	Monitoring	18
9.6.1	Test solution	18
9.6.2	Ultrasonic testing	19
9.6.3	Hydrogen permeation	19
9.6.4	Galvanic coupling	19
9.7	Test completion	19
9.8	Secondary testing	19
9.9	Evaluation of test specimen	19
9.9.1	General	19
9.9.2	Post-test non-destructive testing	20
9.9.3	Metallographic examination	20

10	Test report	22
	Annex A (normative) Ultrasonic testing (UT)	24
	Annex B (normative) Strain gauge installation	29
	Annex C (normative) Analysis of test solution - Iodometric titration procedure	37
	Annex D (informative) Summary of the full ring test procedure	40
	Annex E (informative) Examples of types of cracking	46
	Annex F (informative) Example of full ring test report and loading report	48
	Annex G (informative) Guidance on acceptance criteria	51
	Bibliography	52