

ISO 13503-9:2026-04 (E)

Oil and gas industries including lower carbon energy - Completion fluids and materials - Part 9: Methods for evaluating performance of acidizing fluids

Contents

Page

Foreword.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Principle.....	2
5 Hydrochloric acid acidizing fluid system.....	3
5.1 Corrosion rate assessment.....	3
5.1.1 Purpose.....	3
5.1.2 General.....	3
5.1.3 Reagents and materials.....	3
5.1.4 Apparatus.....	4
5.1.5 Preparation and preservation of test samples and pieces.....	6
5.1.6 Static corrosion rate test procedure.....	7
5.1.7 Dynamic corrosion rate test procedure.....	7
5.1.8 Calculation.....	8
5.2 Acid rock reaction rate.....	8
5.2.1 Purpose.....	8
5.2.2 General.....	9
5.2.3 Reagents and materials.....	9
5.2.4 Apparatus.....	9
5.2.5 Preparation and preservation of test samples and test pieces.....	9
5.2.6 Acid rock reaction rate test procedure.....	10
5.2.7 Calculation.....	11
5.2.8 Plotting the curve.....	11
5.3 Dissolution rate.....	12
5.3.1 Purpose.....	12
5.3.2 General.....	12
5.3.3 Reagents and materials.....	12
5.3.4 Apparatus.....	12
5.3.5 Preparation and preservation of test samples and test pieces.....	12
5.3.6 Dissolution rate test procedure.....	13
5.3.7 Calculation.....	14
5.4 Ability to stabilize ferric ion (Fe ³⁺).....	14
5.4.1 Purpose.....	14
5.4.2 General.....	14
5.4.3 Reagents and materials.....	14
5.4.4 Apparatus.....	14
5.4.5 Preparation and preservation of test samples and test pieces.....	15
5.4.6 Procedure.....	16
5.4.7 Calculation.....	17
5.5 Surface tension.....	17
5.5.1 Purpose.....	17
5.5.2 General.....	17
5.5.3 Reagents and materials.....	17
5.5.4 Apparatus.....	17
5.5.5 Preparation and preservation of test samples and test pieces.....	18
5.5.6 Surface tension measurement procedure.....	18

5.6	Interfacial tension.....	21
5.6.1	Purpose.....	21
5.6.2	General.....	21
5.6.3	Reagents and materials.....	21
5.6.4	Apparatus.....	21
5.6.5	Preparation and preservation of test samples and test pieces.....	22
5.6.6	Interfacial tension measurement procedure.....	22
5.6.7	Calculation.....	23
6	Mud acid acidizing fluid system.....	23
7	Polymer-based acid acidizing fluid system.....	24
8	Emulsified acid acidizing fluid system.....	24
9	Organic acid acidizing fluid system.....	24
10	Other acidizing fluid system.....	24
11	Test report.....	24
	Annex A (informative) Mud acid acidizing fluid system performance evaluation method.....	25
	Annex B (informative) Polymer-based acid acidizing fluid system performance evaluation method.....	29
	Annex C (informative) Emulsified acid acidizing fluid system performance evaluation method.....	34
	Bibliography.....	36