
Industrija za predelavo nafte in zemeljskega plina - Tekočine in materiali za zaključna dela - 6. del: Postopek za merjenje uhajanja tekočin v dinamičnih pogojih (ISO 13503-6:2014)

Petroleum and natural gas industries - Completion fluids and materials - Part 6: Procedure for measuring leakoff of completion fluids under dynamic conditions (ISO 13503-6:2014)

Erdöl- und Erdgasindustrie - Komplettierungsflüssigkeiten und -materialien - Teil 6: Verfahren zur Messung des Fluidverlustes von Komplettierungsflüssigkeiten unter dynamischen Bedingungen (ISO 13503-6:2014)

Industries du pétrole et du gaz naturel - Fluides de complétion et matériaux - Partie 6: Mode opératoire pour le mesurage de la perte de fluide de complétion sous conditions dynamiques (ISO 13503-6:2014)

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75.180.30	Oprema za merjenje prostornine in merjenje	Volumetric equipment and measurements

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Petroleum and natural gas industries - Completion fluids and materials - Part 6: Procedure for measuring leakoff of completion fluids under dynamic conditions (ISO 13503-6:2014)

Industries du pétrole et du gaz naturel - Fluides de complétion et matériaux - Partie 6: Mode opératoire pour le mesurage de la perte de fluide par filtration en conditions dynamiques des fluides de complétion (ISO 13503-6:2014)

Erdöl- und Erdgasindustrie - Komplettierungsflüssigkeiten und -materialien - Teil 6: Verfahren zur Messung des Fluidverlustes von Komplettierungsflüssigkeiten unter dynamischen Bedingungen (ISO 13503-6:2014)

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Foreword

This document (EN ISO 13503-6:2014) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" in collaboration with Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

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**Petroleum and natural gas
industries — Completion fluids and
materials —**

**Part 6:
Procedure for measuring leakoff of
completion fluids under dynamic
conditions**

(standards.iteh.ai)

*Industries du pétrole et du gaz naturel — Fluides de complétion et
matériaux — 13503-6:2014*

*Partie 6: Mode opératoire pour le mesurage de la perte de fluide par
filtration en conditions dynamiques des fluides de complétion*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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ISO 13503-6 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 3, *Drilling and completion fluids, and well cements*.

ISO 13503 consists of the following parts, under the general title *Petroleum and natural gas industries — Completion fluids and materials*:

- *Part 1: Measurement of viscous properties of completion fluids*
- *Part 2: Measurement of properties of proppants used in hydraulic fracturing and gravel-packing operations*
- *Part 3: Testing of heavy brines*
- *Part 4: Procedure for measuring stimulation and gravel-pack fluid leakoff under static conditions*
- *Part 5: Procedures for measuring the long-term conductivity of proppants*
- *Part 6: Procedure for measuring leakoff of completion fluids under dynamic conditions*

Introduction

The objective of this part of ISO 13503 is to provide a procedure for measuring fluid loss (leakoff) under dynamic conditions. This procedure was compiled on the basis of several years of comparative testing, debate, discussion and continued research by the industry.

Dynamic fluid loss testing consists of a simulation of the circulation process where completion fluid loss occurs at a core face with appropriate shear conditions. Under dynamic conditions, the filter cake deposition and fluid loss behaviour are different to those of fluid loss under static conditions.

Laboratory leakoff tests have shown that there is a dynamic effect for low-permeability formations, i.e. $< 1,0$ mD. This is due to the fact that the filter cake develops at the core surface and the shear effect controls the thickness. However, for high-permeability formations, i.e. > 50 mD, the dynamic effect is relatively small because the fluid system that penetrates the fracture face forms minimum filter cake.

The determination of the fluid loss coefficients is simply a quadratic regression of the data, with time and square root of time as variables.

In this part of ISO 13503, where practical, US Customary (USC) units are included in parentheses for information. The units do not necessarily represent a direct conversion of SI to USC units, or vice versa. Consideration has been given to the precision of the instrument making the measurement.

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