



**International  
Standard**

**ISO 13503-2**

**Oil and gas industries including  
lower carbon energy — Completion  
fluids and materials —**

**Part 2:  
Measurement of properties of  
proppants used in hydraulic  
fracturing and gravel-packing  
operations**

*Industries du pétrole et du gaz, y compris les énergies à faible  
teneur en carbone — Fluides de complétion et matériaux —*

*Partie 2: Mesurage des propriétés des agents de soutènement  
utilisés dans les opérations de fracturation hydraulique et de  
remplissage de gravier*

**Second edition  
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 67, *Oil and gas industries including lower carbon energy*, Subcommittee SC 3, *Drilling and completion fluids, well cements and treatment fluids*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 12, *Oil and gas industries including lower carbon energy*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 13503-2:2006), which has been technically revised. It also incorporates the Amendment ISO 13503-2:2006/Amd 1:2009.

This document supplements API Std 19C, 2nd edition (2018).

The technical requirements of this document and API Std 19C used to be identical. In the meantime API Std 19C has been technically revised as API Std 19C, 2nd edition (2018). The purpose of this edition of ISO 13503-2 is to bring it up to date, by referencing the current edition of API Std 19C and including supplementary content.

The main changes are as follows:

- a new stand sampling device has been used for proppant packed in bags;
- proppant on the sieves has been removed and directly weighed in sieve analysis testing;
- the average diameter calculation has been added;
- the remaining total amount on the last sieve and in the pan has been updated to not exceed 2 % by mass of the total tested proppant sample;
- PropPaver loading device has been used instead of Pluviator loading device;
- the upper and lower designating sieve sizes have been kept for sample preparation and after pressurizing in crush resistance test;
- shaking duration of 10 min has been maintained for both sample preparation and after pressurizing in crush resistance test.

## ISO 13503-2:2024(en)

A list of all parts in the ISO 13503 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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# Oil and gas industries including lower carbon energy — Completion fluids and materials —

## Part 2:

# Measurement of properties of proppants used in hydraulic fracturing and gravel-packing operations

## 1 Scope

This document provides testing procedures for evaluating proppants used in hydraulic fracturing and gravel packing operations.

NOTE Proppants mentioned in this document refer to sand, ceramic, resin-coated, gravel packing proppants, and other materials used for hydraulic fracturing and gravel packing operations.

This document supplements API Std 19C, 2nd edition (2018), the requirements of which are applicable with the exceptions specified in this document.

This document provides consistent methodology for testing performed on hydraulic fracturing and/or gravel packing proppants.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Std 19C, 2nd edition (2018), *Measurement of and Specifications for Proppants Used in Hydraulic Fracturing and Gravel-packing Operations*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in API Std 19C, 2nd edition (2018) and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1

#### **PropPaver**

loading device for laying out proppant samples for crush resistance test, primarily used to ensure the proppant pack laid flat within the crush cell, and reducing the potential for operator-induced variability