

# Recommended Practice on Drilling Fluid Processing Systems Evaluation

API RECOMMENDED PRACTICE 13C  
FIFTH EDITION, OCTOBER 2014

REAFFIRMED, MAY 2023



American  
Petroleum  
Institute

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## Introduction

This standard is based on API 13C, 4th Edition, December 2010 (for drilling fluid processing systems evaluation) and shale shaker screen API 13E, 3rd Edition, May 1993 (for shale shaker screen cloth designation).

The purpose of this standard is to provide a method of assessing the performance of solids control equipment systems in the field. It includes procedures for evaluation of shale shakers, centrifugal pumps, degassers, hydrocyclones, mud cleaners, and centrifuges, as well as an entire system evaluation. Shale shaker screen labeling and separation potential of shale shaker screens have been addressed within this standard.

This standard covers equipment that is commonly used in petroleum and natural gas drilling fluids processing. This equipment can be purchased or rented from multiple sources, and is available worldwide. No single-source or limited-source equipment is included, either by inference or reference.

In this standard, quantities expressed in the International System of Units (SI) are also, where practical, expressed in U.S. customary units (USC) for information.

**NOTE** The units do not necessarily represent a direct conversion of SI units to USC units or of USC units to SI units.

Consideration has been given to the precision of the instrument making the measurement. For example, thermometers are typically marked in one degree increments, thus temperature values have been rounded to the nearest degree.

This standard refers to assuring the accuracy of the measurement. Accuracy is the degree of conformity of a measurement of a quantity to the actual or true value. Accuracy is related to precision or reproducibility of a measurement. Precision is the degree to which further measurements or calculations will show the same or similar results. Precision is characterized in terms of the standard deviation of the measurement. The result of calculation or a measurement can be accurate, but not precise, precise but not accurate, neither or both. A result is valid if it is both accurate and precise.

Users of this standard should be aware that further or differing requirements may be needed for individual applications. This standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this standard and provide details.

This document uses a format for numbers that follows the examples given in *API Document Format and Style Manual*, First Edition, June 2007 (Editorial Revision, January 2009). This numbering format is different than that used in API 13C, 4th Edition. In this document the decimal mark is a period and separates the whole part from the fractional part of a number. No spaces are used in the numbering format. The thousands separator is a comma and is only used for numbers greater than 10,000 (i.e. 5000 items, 12,500 bags).

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# Recommended Practice on Drilling Fluid Processing Systems Evaluation

## 1 Scope

This standard specifies a standard procedure for assessing and modifying the performance of solids control equipment systems commonly used in the field in petroleum and natural gas drilling fluids processing.

The procedure described in this standard is not intended for the comparison of similar types of individual pieces of equipment.

## 2 Normative References

The following referenced documents are indispensable for the application 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 Recommended Practice 13B-1, *Recommended Practice for Field Testing Water-based Drilling Fluids*

API Recommended Practice 13B-2, *Recommended Practice for Field Testing Oil-based Drilling Fluids*

API Manual of Petroleum Measurement Standards (MPMS) Chapter 5 (allocations), *Metering*

ANSI/AWWA C700 <sup>1</sup>, *Cold-Water Meters—Displacement Type, Bronze Main Case*

ASTM E11-04 <sup>2</sup>, *Standard Specification for Wire Cloth and Sieves for Testing Purposes*

## 3 Terms, Definitions, Symbols, and Abbreviations

### 3.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1.1

##### **addition section**

Compartment(s) in the surface drilling fluid system, between the removal section and the suction section, which provides (a) well-agitated compartment(s) for the addition of commercial products such as chemicals, necessary solids, and liquids.

#### 3.1.2

##### **agitator**

mechanical stirrer

Mechanically driven mixer that stirs the drilling fluid by turning an impeller near the bottom of a mud compartment to blend additives, suspend solids, and maintain a uniform consistency of the drilling fluid.

#### 3.1.3

##### **aperture (screen cloth)**

Opening between the wires in a screen cloth.

<sup>1</sup> American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, New York 10036, [www.ansi.org](http://www.ansi.org).

<sup>2</sup> ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, [www.astm.org](http://www.astm.org).