Manual of Petroleum Measurement Standards Chapter 22.8

Testing Protocol for Flow Conditioners for Orifice Meters

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Testing Protocol for Flow Conditioner for Orifice Meters

1 Scope

This testing protocol covers any flow conditioner used to create desired flow profiles for concentric, square-edged orifice meters as used under API *Manual of Petroleum Measurement Standards* (*MPMS*), Chapter 14.3. This testing protocol defines the baseline testing and all influence testing that is necessary to determine the performance of a flow conditioner as well as how the data from the testing is to be reported and analyzed.

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 *MPMS* Chapter 14.3, *Concentric, Square-edged Orifice Meters—Part 1: General Equations and Uncertainty Guidelines*

3 Terms, Definitions, Abbreviations, and Symbols

3.1 Terms and Definitions

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

3.1.1
discharge coefficient
C_d
The ratio of the actual flow rate through a primary device to the theoretical flow rate. The theoretical flow rate corresponds to the flow rate derived mathematically.

3.1.2
discharge coefficient R-G
$C_{d\mathrm{RG}}$
The discharge coefficient as determined from the Reader-Harris Gallagher (R-G) equation from API *MPMS* Chapter 14.3.1/AGA Report No. 3, Part 1.

3.1.3
discharge coefficient baseline
$C_{d\mathrm{base}}$
The discharge coefficient as determined from Test 1 (Baseline Test) of this standard.

3.1.4
discharge coefficient test
$C_{d\mathrm{test}}$
The discharge coefficient as determined from each of Tests 2–5 of this standard.