Type Testing of Rising Stem Valves Equipped with Graphite Packing for Fugitive Emissions

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Introduction

The purpose of this standard is to establish a uniform procedure for the evaluation of emission performance of process valves. The testing program will provide a basis for the comparison of the emissions and performance of process valves.

Use of this standard assumes the execution of its provisions is entrusted to appropriately qualified and experienced personnel because it calls for procedures that can be injurious to health if adequate precautions are not taken. This standard refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage of the procedure.

Type Testing of Rising Stem Valves Equipped with Graphite Packing for Fugitive Emissions

1 Scope

This standard specifies the requirements and acceptance criteria (100 ppmv) for fugitive emission type testing of rising and rising-rotating stem valves equipped with packing previously tested in accordance with API 622. Packing shall be suitable for use at service temperatures –29 °C to 538 °C (–20 °F to 1000 °F). The type testing requirements contained herein are based upon elements of EPA Method 21.

Valves larger than NPS 24 or valves greater than class 1500 are outside the scope of this standard.

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 Standard 602, *Steel Gate, Globe and Check Valves for Sizes DN 100 and Smaller for the Petroleum and Natural Gas Industries*

API Standard 622, *Type Testing of Process Valve Packing for Fugitive Emissions*

ASME B16.34 [1], *Valves—Flanged, Threaded, and Welding End*

EPA Method 21 [2], *Determination of Volatile Organic Compound Leaks*

3 Terms and Definitions

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

3.1
ambient temperature
Temperature that is between 15 °C to 40 °C (59 °F to 104 °F).

3.2
auxiliary connection
Drain(s), vent(s), or sealant injection port(s).

3.3
bolting torque
The amount of twisting or turning effort (expressed as N-m, ft-lb, or in.-lb) required to tighten a threaded fastener.

3.4
dynamic leak measurement
Measurement of leakage taken while the stem is traveling through an opening and closing cycle.

3.5
EPA Method 21
A leak check method established by the United States Environmental Protection Agency (EPA) for performing emissions measurements on equipment such as valves, pumps, and flanges.

[1] ASME International, 3 Park Avenue, New York, New York 10016-5990, www.asme.org.
[2] U.S. Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, Washington, DC 20460, www.epa.gov.