Process Analyzers

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Process Analyzers

1 Scope

Process monitors that measure and transmit information about chemical composition, physical properties, or chemical properties are known as *process analyzer systems.* Many of these systems were first developed for laboratory analysis. Today they are primarily used as continuous online analyzers.

A process monitoring system usually requires a sample extraction, transport, conditioning system, a process analyzer, and one or more data output devices. Properly designed systems also require overall considerations as to calibration, validation, utilities, sample disposal, safety, and systems packaging.

Process analyzers measure chemical concentrations or physical or chemical properties that can be used as control variables instead of relying on indirect physical parameters, such as pressure, temperature, and inferred data from computer models. Process analyzer systems can provide a significant economic return when incorporated into process optimization and advanced control loops or when used for product quality control and process incident avoidance.

This recommended practice does not address laboratory analyzers requirements.

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 8, *Sampling*

API Recommended Practice 500, *Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1, and Division 2* (as referenced in Section 4)

API Recommended Practice 505, *Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2* (as referenced in Section 4)

API Recommended Practice 551, *Process Measurement Instrumentation*

API Recommended Practice 556, *Instrumentation, Control, and Protective Systems for Gas Fired Heaters*

ANSI [1]/ASSP Z117.1 [2], *Safety Requirements for Entering Confined Spaces* (as referenced in Section 7)

ASTM D56-22 [3], *Standard Test Method for Flash Point by Tag Closed Cup Tester*

ASTM D92-24, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester*

ASTM D93-25, *Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester*

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1 American National Standards Institute, 1899 L Street NW, 11th Floor, Washington, DC 20036, www.ansi.org.
2 American Society of Safety Professionals, 520 N. Northwest Highway, Park Ridge, IL 60068, www.assp.org.
3 ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, www.astm.org.