



# Standard Practice for Collection of On-Line Composite Samples of Suspended Solids and Ionic Solids in Process Water<sup>1</sup>

This standard is issued under the fixed designation D6301; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice is applicable for sampling condensed steam or water, such as boiler feedwater, for the collection of suspended solids and (optional) ionic solids using a 0.45- $\mu$ m membrane filter (suspended solids) and ion exchange media (ionic solids). As the major suspended component found in most boiler feedwaters is some form of corrosion product from the preboiler system, the device used for this practice is commonly called a corrosion product sampler.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

D1066 Practice for Sampling Steam

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

D1971 Practices for Digestion of Water Samples for Determination of Metals by Flame Atomic Absorption, Graphite Furnace Atomic Absorption, Plasma Emission Spectroscopy, or Plasma Mass Spectrometry

D2332 Practice for Analysis of Water-Formed Deposits by Wavelength-Dispersive X-Ray Fluorescence

D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.03 on Sampling Water and Water-Formed Deposits, Analysis of Water for Power Generation and Process Use, On-Line Water Analysis, and Surveillance of Water.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D3370 Practices for Sampling Water from Closed Conduits  
D3864 Guide for On-Line Monitoring Systems for Water Analysis

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this practice, refer to Terminology D1129.

### 3.2 Definitions of Terms Specific to This Standard:

3.2.1 *corrosion product sampler, n*—a device used to collect integrated samples of suspended solids and (as an option) ionic solids.

3.2.1.1 *Discussion*—It consists of a flow totalizer that accurately measures the amount of sample passing through the device and a 0.45- $\mu$ m pore size membrane filter. Adding a second filter for ion exchange resin impregnated membranes allows for collecting ionic solids.

3.2.2 *ionic solids, n*—includes all matter that will pass through a 0.45- $\mu$ m pore size filter and may be captured on anion, or cation ion exchange membranes, or both.

3.2.3 *suspended solids, n*—includes all matter that is removed by a 0.45- $\mu$ m pore size filter.

## 4. Summary of Practice

4.1 A typical sampling apparatus, or corrosion product sampler, is used to obtain integrated, representative samples of suspended solids and ionic solids using a 0.45- $\mu$ m membrane filter and ion exchange membranes. The sampling is accomplished at system operating pressure or after pressure reduction, and sample temperature of  $\leq 50^{\circ}\text{C}$ . The practice utilizes a modified stainless steel high pressure filter housing to accommodate a 47-mm diameter filter (for suspended solids) and if desired, ion exchange membranes (for ionic solids). The sample collection system (corrosion product sampler) is designed and operated specifically for quantitative collection of suspended solids and ionic solids. An important feature of the sampler is the flow totalizer, which accurately determines the total volume of sample that has passed through the sampler, regardless of changes in flowrate or pressure during the collection period. Control and pressure reducing valves and metering devices are downstream of the filter housing to eliminate the possible contribution of suspended solids and ionic solids from these components to the sample stream.

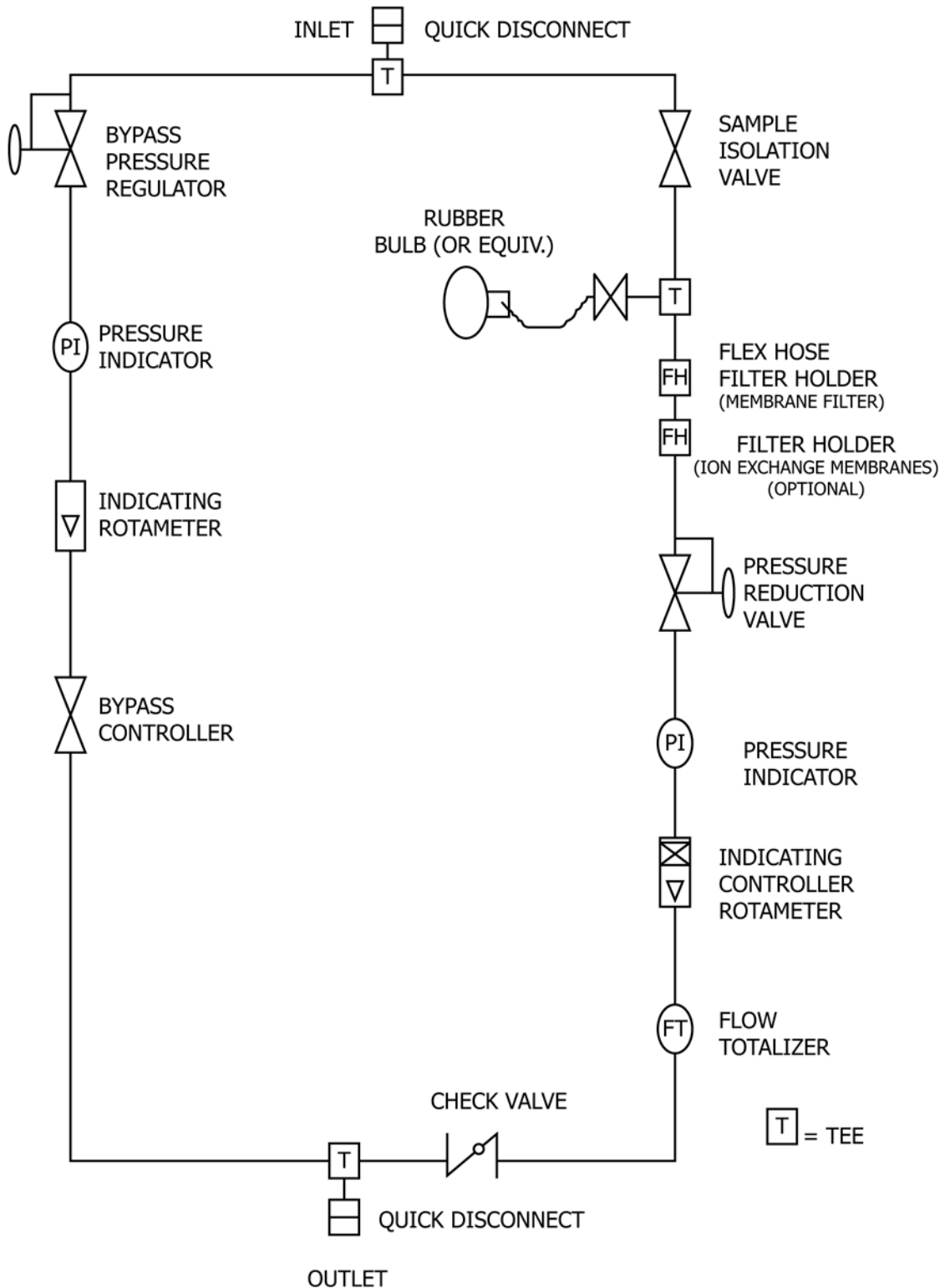


FIG. 1 Simplified Flow Diagram for Corrosion Product Sampler