

# **An Overview of the Standard Methods and ASTM activities**

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# VCSBs, such as ASTM or Standard Methods meet ANSI requirements

Development process for methods to meet requirements of OMB A-119



- Balance of interest
- Openness
- Due process
- Consensus
- Appeals process

Federal policy on use of voluntary consensus standards.

*Federal Agencies must use voluntary consensus standards except where inconsistent with law or otherwise impractical.*

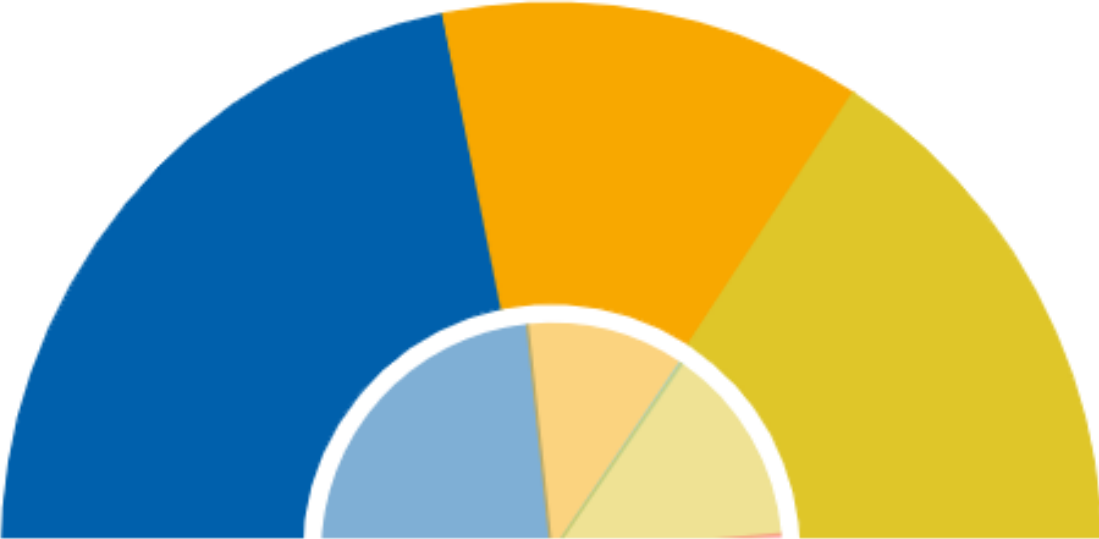
Policy applies to all Federal government, including test procedures.

# Example of ASTM Committee Balance

D19 Water

D34 Waste

Committee Summary



Producer Votes Available: 30

Committee Summary



Producer Votes Available: 63

D19 could use more users

# Statement from EPA CWA website

## VCSB Methods

The second major source for new or revised methods is those methods that are adopted by a **voluntary consensus standards body** (VCSB) such as ASTM International and *Standard Methods*, or another government agency such as the [United States Geological Survey](#). VCSBs may submit methods and modifications to OST under the provisions of the [National Technology Transfer and Advancement Act](#) (NTTAA). The NTTAA requires EPA to adopt methods approved by VCSBs, unless doing so would be inconsistent with applicable laws or is otherwise impractical. When VCSBs or other government agencies submit adopted methods for consideration, **they must include the method in its final form, documentation that it has been approved/published by that VCSB or agency, the validation study plan, and the validation study report, including data and analysis that supported the method's development and adoption. The VCSB or agency must comply with its own internal method testing criteria (e.g., ASTM D2777).**

# Validation Criteria for ASTM D19 and SM chemistry methods

**D8272 Standard Guide for  
Development and Optimization of D19 Chemical Analysis  
Methods Intended for EPA Compliance Reporting**

**D2777 Standard Practice for  
Determination of Precision and Bias of Applicable Test  
Methods of Committee D19 on Water<sup>1</sup>**

**Standard Methods SOP 4.1 and Appendix  
Components of a Method Validation**

This must be completed before a method is  
submitted to EPA, or any regulatory agency

1. Introduction and Justification
2. Apparatus
3. Reagents and Materials
4. Sampling and Sample Preservation
5. Linearity
6. Limit of Detection and Limit of Quantitation
7. Repeatability and recovery in non-interfering matrices
8. Evaluation of Interferences
9. Procedure
10. Ruggedness
11. Repeatability and Recovery in Representative matrices
12. Multiple Laboratory determination of method transfer and reproducibility

# Example of a recent EPA SDWA MUR

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EPA previously established an “Expedited Method Approval” process that allows the Agency to approve “equally effective” drinking water analytical methods via a single *Federal Register* notice to make new methods available for compliance-monitoring analyses. The *FR* notice for the next (thirteenth) such action was published today (see attached PDF). The action addresses the **approval of 93 methods: one ASTM International method, 90 Standard Methods from their 24<sup>th</sup> Edition**, and two vendor-developed methods evaluated through our chemistry drinking-water Alternate Test Procedure program. Please contact me with any questions about the approval action.

# OK, so what are we doing? Where to begin? PFAS anyone?

## Completed ASTM PFAS Standards

**D7979** Standard Test Method for Determination of Per- and Polyfluoroalkyl Substances in Water, Sludge, Influent, Effluent, and Wastewater by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

**D8421** Standard Test Method for Determination of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Matrices by Co-solvation followed by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

**D7968** Standard Test Method for Determination of Polyfluorinated Compounds in Soil by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

**D8535** Standard Test Method for Determination of Per- and Polyfluoroalkyl Substances (PFAS) in Soil/Biosolid Matrices by Solvent Extraction, Filtering, and Followed by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

**E3274** Standard Guide for Management of Investigation-Derived Waste Associated with PFAS

**E3302** Standard Guide for PFAS Analytical Methods Selection

**E3358** Standard Guide for Per- and Polyfluoroalkyl Substances Site Screening and Initial Characterization

# ASTM PFAS Work Items in progress (various Committees)

**WK74176** - New Guide for Management of PFAS released into Wastewater Streams.

**WK70265** - New Guide for Process to assess the effectiveness of PFAS water treatment

**WK76460** - New Guide for PFAS Data Evaluation Guidance

**WK80687** - New Test Method for Ultrashort-Chain PFAS in Waters by LC-MS/MS

**WK81752** - New Guide for Determination of Airborne PFAS in the Indoor Environment

**WK83978** - New Guide for Selecting Analytical Methods to Evaluate PFAS in Consumer and Related Products

**WK88581** - New Test Method for Determination of Extractable Per- and Polyfluoroalkyl Substances (PFAS) in Solid Matrices by Solvent Extraction, Filtering and followed by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

**WK88987** - New Test Method for Ultrashort Chain PFAS

**WK61524** - Revision of D7994-17 Standard Test Method for Total Fluorine, Chlorine, and Sulfur in Liquid Petroleum Gas (LPG) by Oxidative Pyrohydrolytic Combustion Followed by Ion Chromatography Detection (Combustion Ion Chromatography-CIC)

**WK68866** - New Test Method for Determination of Adsorbable Organic Fluorine in Waters and Waste Waters by Adsorption on Activated Carbon followed by Combustion Ion Chromatography (note → collaborated with EPA to make this EPA 1621)

**WK76848** - New Test Method for Total Fluorine in Packaging Products by the Oxygen Bomb Combustion/Ion Selective Electrode Method

# Other ASTM D19 Standards Completed or in Process (microplastics)

**D8332-20** Standard Practice for Collection of Water Samples with High, Medium, or Low Suspended Solids for Identification and Quantification of Microplastic Particles and Fibers

**D8333-20** Standard Practice for Preparation of Water Samples with High, Medium, or Low Suspended Solids for Identification and Quantification of Microplastic Particles and Fibers Using Raman Spectroscopy, IR Spectroscopy, or Pyrolysis-GC/MS

**D8402-23** Standard Practice for Development of Microplastic Reference Samples for Calibration and Proficiency Evaluation in All Types of Water Matrices with High to Low Levels of Suspended Solids

**D8489-23e1** Standard Test Method for Determination of Microplastics Particle and Fiber Size, Distribution, Shape, and Concentration in Waters with High to Low Suspended Solids Using a Dynamic Image Particle Size and Shape Analyzer

**D8401-24** - Identification of Polymer Type and Quantity of Microplastic Particles and Fibers in Waters with High-to-Low Suspended Solids Using Pyrolysis-Gas Chromatography/Mass Spectrometry

**WK87463** - Spectroscopic Identification and Quantification of Microplastic Particles in Water Using Infrared (IR) Spectroscopy

# Other ASTM Standards Completed or in Process (pesticides)

**D8025-23** Standard Test Method for Determination of Select Pesticides in Water by Multiple Reaction Monitoring Liquid Chromatography Tandem Mass Spectrometry

**D8543-23** Standard Test Method for Determination of Pesticides and Polychlorinated Biphenyls (PCBs) in Aqueous Solution by a Tandem Gas Chromatography/Mass Spectrometry/Mass Spectrometry (GC/MS/MS)

**WK85842** - Determination of Selected Pesticides and Herbicides in Water by Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)



About 50 regulated pesticides and herbicides including carbamates and chlorinated acids with simple extractions.



Proposed by EMC for Inter-lab study and then reduction of MeCL<sub>2</sub> use

# Other ASTM Standards Completed or in Process (miscellaneous)

**WK87910** - the Determination of Selected Elements in Aqueous Solutions by Single Quadrupole Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)

**WK81193** - Revision of D1193-06(2018) Standard Specification for Reagent Water

**D8234-19** Standard Test Method for Anions in High Ionic Water by Ion Chromatography using Tandem Suppressed Conductivity and UV Detection

**D8083-16(2023)** Standard Test Method for Total Nitrogen, and Total Kjeldahl Nitrogen (TKN) by Calculation, in Water by High Temperature Catalytic Combustion and Chemiluminescence Detection

**D6520-18** Standard Practice for the Solid Phase Micro Extraction (SPME) of Water and its Headspace for the Analysis of Volatile and Semi-Volatile Organic Compounds

**D5241-92(2017)** Standard Practice for Micro-Extraction of Water for Analysis of Volatile and Semi-Volatile Organic Compounds in Water

Could the last two be revised to methods and reduce MeCL<sub>2</sub>?

# Method activity at Standard Methods (note all methods subject to 5-year review)

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## Part 1000

Revise 1010 – define things like “least squares curve fitting”

Revise 1020 – All encompassing QC section

Revise 1080 reagent water (collaborate with ASTM)

Revise 1040 – method development (partial in SOP)

## Part 2000

Revise 2120 color (single wavelength)

Revise 2710 (tests on sludge)

Revise or get comments 2130 turbidity

Revise or get comments 2540 solids

# Method activity at Standard Methods (note all methods subject to 5-year review)

## Part 3000

Revise 3125 – ICP-MS metals (in collaboration with ASTM) add CCT and SIC checks. Complete multiple lab study. Seeking volunteers.

New method – As and other metal speciation by IC (or LC) – ICP-MS. Comments?

## Part 4000

Revised 4500-PAA – first revision since 24<sup>th</sup> edition published

Revising sulfide with interference study and holding time study. Also, reagents for colorimetric tests.

Revise sulfate to add BaCl<sub>2</sub> as a liquid reagent rather than granules.

Comment ballot on TKN (4500-N<sub>org</sub>) → do people really run TKN as written here?

New method for TN by alkaline persulfate (like sTKN but a TN method) (EPA collaboration)

# Method activity at Standard Methods (note all methods subject to 5-year review)

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## Part 5000

Revise BOD and COD methods. Contact me if you are interested.

New method or section for online analyzer methods (in collaboration with EPA)

## Part 6000

Revise 6020 QC section --. Significant update (Jerry Parr)

Revise 6040 taste and odor → significant update

New method for PFAS one like ASTM and another SPE (one method for DW, WW, and solids) (SDWA William Adams on JTG)

Revise 624, 625, and 608 equivalents → will send comment ballot.

# Method activity at Standard Methods (note all methods subject to 5-year review)

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Part 7000

Revise 7110 Gross Alpha and Gross Beta (in collaboration with EPA)

Part 8000?

Part 9000

Revise 9020? → comment ballot maybe

Revise 9223 → required action

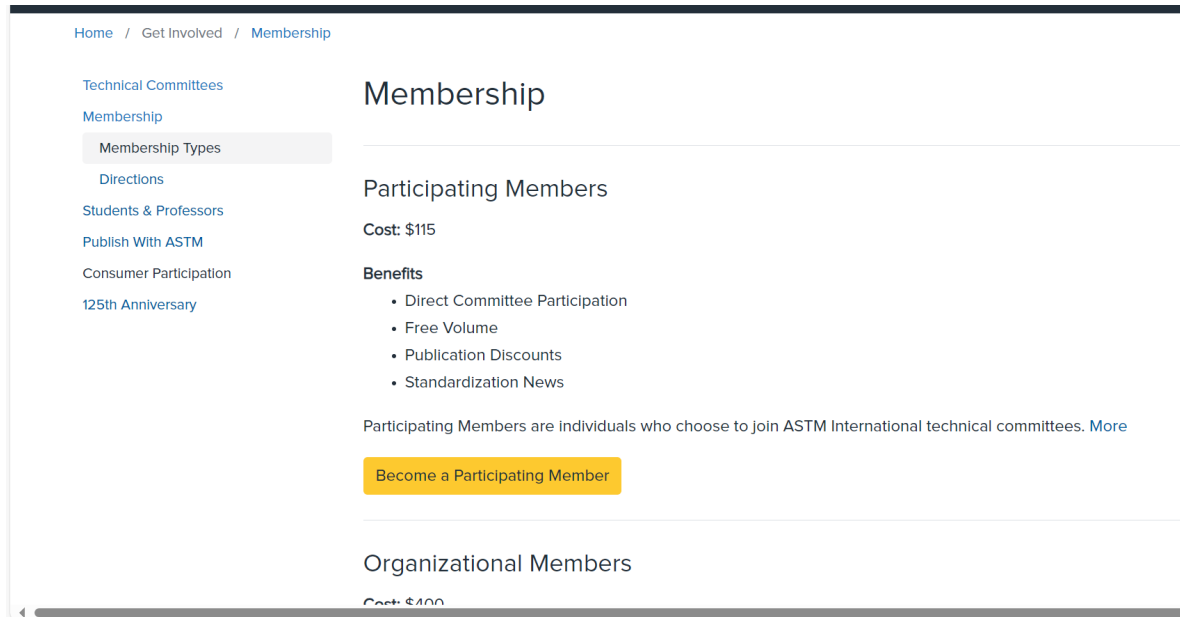
Part 10,000

Revise new cyanotoxins methods?

Add new method using flow imaging microscopy

Update method on Nematodes

# Join ASTM



- D19 water
  - D19.05 inorganics
  - D19.06 organics
  - D19.04 radchem
  - D19.24 micro
- D34 waste
- D22 air
- E50 site assessment
- F15 consumer products

\$115 for a free book (subscription) and download all the methods in that volume.  
Join any committee and subcommittee at no extra charge.

Requirement = VOTE

# Join the Standard Methods Committee

[Participation in Preparation of Standard Methods](#) is an introduction from the Joint Editorial Board.

The [Information Form](#) enables us to add you to the committee and record your interests in regard to water and wastewater analysis as well as Joint Task Group (JTG) membership.

Refer to the [Tentative Listing of Sections](#) to select the sections you would like to participate on as a JTG member.

Finally, [General Ballot Response](#) provides information on the level of participation required to receive a complimentary seat for *Standard Methods Online*.

**Please fill out the [Information Form](#) and send it to the [Standard Methods manager](#).**

Thank you for your interest in *Standard Methods*.

\$0.00 to join. Requirement = Vote.

# Questions?

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