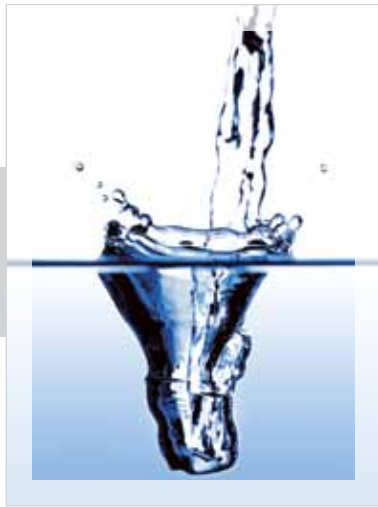


Life Sciences

Certified Reference Materials: TOC • Conductivity • Turbidity • pH • Custom

2013



CONFIDENCE



A Waters Company



Carl Craig, Ph.D., President, ERA

The long-term success of your business depends upon your ability to consistently manufacture products of the highest quality, and more importantly, your ability to measure that quality. From start to finish, anything short of excellence is too great a risk and inconsistent with your values.

Each step in the process of bringing a product to market builds upon the next, which is why it is critical that the basis of your analytical results be linked to the best reference materials available. Not always given adequate attention, the reference materials you use in method development and manufacturing quality control ultimately help define the quality of your finished product.

At ERA, the reference materials we manufacture for our Life Science customers are a critical component in your product's pedigree. Our ISO Guide 34 accreditation ensures that we adhere to strict internationally recognized quality processes that are specific to Certified Reference Material (CRM) producers. ERA's commitment to delivering the highest quality products available and to our continuous quality improvement transcends our accreditation - it's a company-wide philosophy that starts with me.

"...it is critical that the basis of your analytical results be linked to the best reference materials available."

When you bring a CRM from ERA into your facility you can have confidence in your data and confidence in your quality. We have been providing that confidence to our customers for decades and have earned their trust as a result. If you are not currently using ERA's reference materials, we want to earn your trust and confidence as well.

Regards,

Carl Craig



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ABOUT ERA

Since dedicating a full-time business unit to our Life Science customers in 2000, ERA has grown to become the premier manufacturer of certified reference materials (CRMs) for TOC, and conductivity in pharmaceutical water quality testing. We offer a comprehensive line of reference standards, reagents and sampling containers for pharmaceutical, biotech and medical device manufacturers.



Regardless of manufacturer, ERA is your source for independent standards that are designed specifically for the TOC instruments in your facility:

- ANATEL®
- Shimadzu®
- Swan
- Sievers®
- Teledyne Tekmar®
- Lighthouse
- Analytik Jena
- Thornton®
- OI Analytical®
- Comet



Teledyne Tekmar Fusion



Sievers® Model 900

ANATEL is a registered trademark of the Hach Company. Sievers is a registered trademark of GE Analytical Instruments. OI Analytical is a registered trademark of the IIT Corporation. Shimadzu is a registered trademark of the Shimadzu Corporation. Tekmar and Fusion are registered trademarks of Teledyne Tekmar. Thornton is a registered trademark of the Mettler-Toledo Company.



Will McHale

Life Sciences Senior Market Manager

“Data integrity is one of the main responsibilities of any FDA-regulated analytical laboratory. Your reputation and the health of your customers is too important to risk on product that is not completely defensible.

With CRMs from ERA you get reference standards that are accurate, stable, traceable and consistent because under our Guide 34 accreditation we are required to ensure just that.”

“As Product Line Manager for ERA’s Life Sciences and Customs products, my team is prepared to help our customers’ meet their daily challenges. We ensure that the highest levels of care and quality go into all the products we make, whether it is our most popular catalog item or a one-time custom solution.”



John Laferty

Product Line Manager

“ERA strives to be the premium provider of certified reference materials every day.

Our commitment to you is nothing short of first-class quality, on-time delivery, and top-notch customer support. If you think we fall short in any way, let me know and I will personally make it right.”



David Kilhefner

Director of Operations

ERA'S ACCREDITATIONS

ERA customers recognize that the products and services we provide are among the very best in the world. Our certifications and accreditations are just one facet of what distinguishes ERA as an elite manufacturer of Certified Reference Materials for analytical laboratories globally. Few manufacturers can boast the same rigorous ISO quality programs ERA have in place.

ERA achieves registration or accreditation when an outside authority that has been qualified to review our processes and procedures evaluates us against an internationally developed set of strict requirements. These requirements span from making certain we maintain the proper physical facilities to evaluating the calculations we use in our statistical analysis. The accreditations affirm our ability to provide customers with the highest quality products possible and allow for international acceptance of ERA products by laboratory accreditation bodies.

*Our two facilities in the U.S. and UK are registered to ISO 9001:2008 and accredited to ISO Guide 34, ISO 17025 and ISO 17043.**

...an outside authority that has been qualified to review our processes and procedures evaluates us against an internationally developed set of strict requirements.

ISO 9001

ISO 9001 is a quality management standard that applies to all types of organizations regardless of size or function. This international standard helps both product and service oriented organizations achieve standards of quality that are recognized and respected throughout the world. This is accomplished mostly through quality management practices that extend into all areas of an organization.

ISO 9001 registered companies must have written procedures and training documentation in the areas of customer service, complaint handling, product design, purchasing, manufacturing, product evaluation, packaging and shipping. While it is not a requirement, included on our ISO 9001:2008 accreditation scope are Synthetic Reference Materials and Quality Control Standards.

While many companies view their ISO 9001 registration as the pinnacle of success in their pursuit of quality, it represents only the foundation for ERA.

ERA is accredited by NQA in the United States and by LRQ in the United Kingdom.



ISO GUIDE 34

Our ISO Guide 34:2008 accreditation is targeted specifically to Certified Reference Material (CRM) manufacturers. For a manufacturer to become ISO Guide 34 registered, the policies and processes employed to design, manufacture and certify reference materials must be validated and proven to be accurate and robust. For CRMs, ISO Guide 34 also requires that each Certificate of Analysis (C of A)

For a manufacturer to become ISO Guide 34 registered, the policies and processes employed to design, manufacture and certify reference materials must be validated and proven to be accurate and robust.

include an uncertainty statement that reflects all sources of error involved in certifying the standard, including measurements and material purity; it must allow for complete traceability of the CRM. The ability to maintain an unbroken chain of calibrations, and also to control, calculate and report uncertainty correctly are what differentiates ERA's expertise from that of our competitors.



ISO 17025

ISO 17025:2005 certification, covering the competence of testing and calibration laboratories, ensures that a company's laboratory tests are performed correctly, and that attestations of product quality are appropriate and defensible. All aspects of raw material, in-process and final product verification are covered by this accreditation. It certifies the company's ability to demonstrate the robustness of their quality program through comprehensive and accurate product testing.

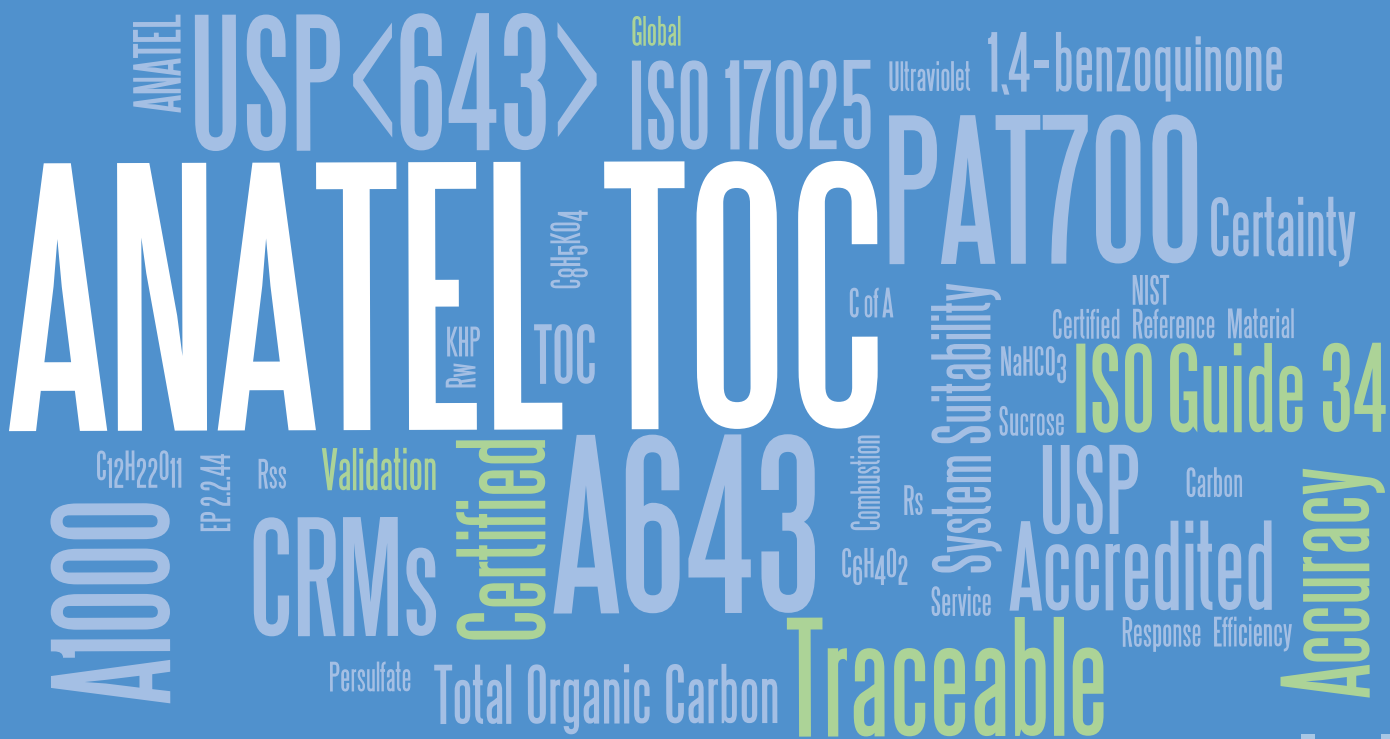


ISO GUIDE 17043

ISO Guide 17043 is designed specifically for Proficiency Testing (inter-laboratory comparison testing) providers. ISO 17043 specifies the essential activities that need to be evaluated when conducting inter-laboratory testing comparisons. ISO 17043 defines the criteria related to study design, sample manufacture and the ensuring of homogeneity and stability, which must be taken into account in the design and execution of proficiency testing schemes.



*ERA's U.S. facility is accredited to ISO Guide 34, ISO 17025 and ISO 17043 by American Association of Laboratory Accreditation (A2LA) and registered to ISO 9001:2008 by National Quality Assurance (NQA). ERA's UK facility is accredited to ISO Guide 34 and ISO 17025 by United Kingdom Accreditation Society (UKAS) and registered to ISO 9001:2008 by Lloyd's Register Quality Assurance (LRQA).



ANATEL® TOC

ANATEL-brand Total Organic Carbon analyzers continue in popularity for ultrapure water monitoring applications. Combine your ANATEL technology with the finest reference standards available from ERA - ISO Guide 34 accredited to support the quality needs of our FDA-regulated customers.

ANATEL

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Certified reference materials for the ANATEL PAT700 are formulated specifically for the unique technology inherent in that instrument and are packaged in ready to use in RFID-tagged bottles.

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss.

USP System Suitability <i>Replaces ANATEL FG5017601.</i>	60 mL	Cat. #18402
USP System Suitability	500 mL	Cat. #18140

Individual – USP / EP

USP Reagent Water (Rw)	60 mL	Cat. #17400
0.500 mg/L C from USP Sucrose (Rs)	60 mL	Cat. #17410
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	60 mL	Cat. #17420

Calibration

Kits

Three bottles: (1) Blank, (1) 0.250 mg/L C NIST Sucrose, (1) 0.500 mg/L C NIST Sucrose and (1) 0.750 mg/L C NIST Sucrose. <i>Replaces ANATEL FG7019202.</i>	60 mL	Cat. #19202
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Individual

Calibration Blank	60 mL	Cat. #13301
0.250 mg/L C from NIST Sucrose	60 mL	Cat. #14400
0.500 mg/L C from NIST Sucrose	60 mL	Cat. #14410
0.750 mg/L C from NIST Sucrose	60 mL	Cat. #14420

Conductivity

100 µS/cm <i>Replaces ANATEL FG7002602.</i>	60 mL	Cat. #02602
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Validation

Kits

Validation Control Kit

Two bottles: (1) Blank and (1) 0.500 mg/L C NIST Sucrose in 60 mL bottles. <i>Replaces ANATEL FG7019222.</i>	60 mL	Cat. #19222
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Validation Protocol Reagent Kit

40 bottles: (14) Calibration Blanks, (5) Conductivity Solutions, (1) Validation Control Kit, (2) Calibration Standards Kits, (1) System Suitability Set, (1) Excursion w/ Validation Kit, (1) 0.250 mg/L C NIST Sucrose, (1) 0.750 mg/L C NIST Sucrose, (1) USP Reagent Water and (1) 0.500 mg/L C USP 1,4-Benzoquinone. Includes two 60 mL excursion bottles; does not include NIST Traceable Resistor. <i>Replaces ANATEL FG7019232.</i>		Cat. #19232
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Excursion Kit

Ten 60 mL amber HDPE bottles. <i>Replaces ANATEL FG7025100.</i>		Cat. #25100
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Excursion with Validation Kit

Three bottles: (1) Blank, (1) 0.500 mg/L C NIST Sucrose and (1) empty 60 mL amber HDPE bottle. <i>Replaces ANATEL FG7019250.</i>		Cat. #19250
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Consumables

Lamps

Replacement lamp for PAT 700		Cat. #20037
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ANATEL® A643

All of our ANATEL CRMs are prepared using carefully controlled processes that are scrutinized under ERA's ISO Guide 34 accreditation. These manufacturing processes ensure that the results you receive from your TOC instrument reflect its true capabilities.

The following CRMs are used for calibration and validation of ANATEL on-line TOC analyzers.

System Suitability

Sets – USP / EP

Four bottles: (2) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss.

USP System Suitability <i>Replaces ANATEL FG5017601</i>	60 mL	Cat. #18400
USP System Suitability	125 mL	Cat. #18035
USP System Suitability	250 mL	Cat. #18060
USP System Suitability	500 mL	Cat. #18150
USP System Suitability	1 Liter	Cat. #18245

System Suitability Set with Check

(2) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs, (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss and (1) 0.250 mg/L C NIST Sucrose as check.	60 mL	Cat. #13390
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Calibration

Kits

Five bottles: (2) Blanks, (1) 0.250 mg/L C NIST Sucrose, (1) 0.500 mg/L C NIST Sucrose and (1) 0.750 mg/L C NIST Sucrose. <i>Replaces ANATEL FG5017401.</i>	60 mL	Cat. #19200
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Individual

Calibration Blank	60 mL	Cat. #13300
Calibration Blank	125 mL	Cat. #10019
Calibration Blank	250 mL	Cat. #10031
Calibration Blank	500 mL	Cat. #10120
0.250 mg/L C NIST Sucrose	60 mL	Cat. #13400
0.250 mg/L C NIST Sucrose	125 mL	Cat. #10319
0.250 mg/L C NIST Sucrose	250 mL	Cat. #10331
0.250 mg/L C NIST Sucrose	500 mL	Cat. #10420
0.500 mg/L C NIST Sucrose	60 mL	Cat. #13500
0.500 mg/L C NIST Sucrose	125 mL	Cat. #10619
0.500 mg/L C NIST Sucrose	250 mL	Cat. #10631
0.500 mg/L C NIST Sucrose	500 mL	Cat. #10720
0.750 mg/L C NIST Sucrose	60 mL	Cat. #13600
0.750 mg/L C NIST Sucrose	125 mL	Cat. #10919
0.750 mg/L C NIST Sucrose	250 mL	Cat. #10931
0.750 mg/L C NIST Sucrose	500 mL	Cat. #11020

Conductivity

Individual

100 µS/cm	60 mL	Cat. #02610
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Validation

Kits

Validation Kit

Ten bottles: (2) Blanks, (1) 0.250 mg/L C NIST Sucrose, (1) 0.500 mg/L C NIST Sucrose, (1) 0.750 mg/L C NIST Sucrose, (1) 100 µS/cm Conductivity Standard and (1) USP System Suitability Set.	60 mL	Cat. #19210
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Validation Control Kit

Three bottles: (2) Blanks and (1) 0.500 mg/L C NIST Sucrose. <i>Replaces ANATEL FG5017501.</i>	60 mL	Cat. #19220
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Validation Protocol Kit

38 bottles: (10) Blanks, (3) 0.250 mg/L C NIST Sucrose, (5) 0.500 mg/L C NIST Sucrose, (3) 0.750 mg/L C NIST Sucrose, (1) 100 µS/cm Conductivity Standard and (4) USP System Suitability Sets. <i>Replaces reference materials portion of ANATEL FG5017701. Lamp not included.</i>	60 mL	Cat. #19230
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From left to right:

Will McHale, Senior Market Manager, Life Sciences; **Scott Lynn**, National Accounts Manager

Consumables

Bottles

60 mL Low TOC HDPE Bottle

Natural	each	Cat. #25030
Natural	25/pack	Cat. #25031
Amber	each	Cat. #25033
Amber	25/pack	Cat. #25034

Cap

Pre-cleaned with Septa	each	Cat. #25010
Pre-cleaned with Septa	100/pack	Cat. #25011

Lamps

Replacement UV Lamp

Replacement UV Lamp for ANATEL/HUA Model A643. <i>Replaces ANATEL FG6002601.</i>	Cat. #20036A
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Vials

Low TOC Sample Vial Kit

68 pre-cleaned 50 mL low TOC vials with pre-cleaned septa and aluminum crimp cap. Use for grab samples to be analyzed on ANATEL A643. <i>Replaces ANATEL FG5014801.</i>	Cat. #25045
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WWW.ERAQC.COM



800-372-0122 (T) 303-431-8454



INFO@ERAQC.COM

ANATEL® TOC 600

Because most online TOC instruments are susceptible to interferences from background contamination, all CRMs from ERA are prepared using carefully controlled processes scrutinized under ERA's ISO Guide 34 accreditation.

System Suitability

Sets – USP / EP

Three bottles: (1) Reagent Water R _w , (1) 0.500 mg/L C from USP Sucrose R _s and (1) 0.500 mg/L C from USP 1,4-benzo-quinone R _{ss} .	125 mL	Cat. #18036
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Validation

Kits

Validation Kit

Two bottles: (1) Blank and (1) 0.500 mg/L C NIST Sucrose.	60 mL	Cat. #19221
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Validation Protocol Reagent Kit

48 bottles: (29) 125 mL bottles and (1) Conductivity Solution Kit, (3) Calibration Standards Kit, (2) Validation Control Kit and (4) System Suitability Kit.	60 mL	Cat. #19231
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Conductivity

100 µS/cm	125 mL	Cat. #02601
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Consumables

Bottles

60 mL Low TOC HDPE Bottle

Natural	each	Cat. #25030
Natural	25/pack	Cat. #25031
Amber	each	Cat. #25033
Amber	25/pack	Cat. #25034

Lamps

Replacement UV Lamp for ANATEL A643. Replaces ANATEL FG6002601.	Cat. #20036A
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Calibration

Kits

Four bottles: (1) Blank, (1) 0.250 mg/L C NIST Sucrose, (1) 0.500 mg/L C NIST Sucrose and (1) 0.750 mg/L C NIST Sucrose.	60 mL	Cat. #19201
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Individual

Calibration Blank	60 mL	Cat. #13300
Calibration Blank	125mL	Cat. #10019
Calibration Blank	250 mL	Cat. #10031
Calibration Blank	500 mL	Cat. #10120
0.250 mg/L C NIST Sucrose	60 mL	Cat. #13400
0.250 mg/L C NIST Sucrose	125 mL	Cat. #10319
0.250 mg/L C NIST Sucrose	250 mL	Cat. #10331
0.250 mg/L C NIST Sucrose	500 mL	Cat. #10420
0.500 mg/L C NIST Sucrose	60 mL	Cat. #13500
0.500 mg/L C NIST Sucrose	125 mL	Cat. #10619
0.500 mg/L C NIST Sucrose	250 mL	Cat. #10631
0.500 mg/L C NIST Sucrose	500 mL	Cat. #10720
0.750 mg/L C NIST Sucrose	60 mL	Cat. #13600
0.750 mg/L C NIST Sucrose	125 mL	Cat. #10919
0.750 mg/L C NIST Sucrose	250 mL	Cat. #10931
0.750 mg/L C NIST Sucrose	500 mL	Cat. #11020

ANATEL® A-1000

System Suitability

Sets – USP / EP

Three bottles: (1) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss.	1 Liter	Cat. #19030
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Calibration

Individual

Calibration Blank	1 Liter	Cat. #10211
0.250 mg/L C NIST Sucrose	1 Liter	Cat. #10511
0.500 mg/L C NIST Sucrose	1 Liter	Cat. #10811
0.750 mg/L C NIST Sucrose	1 Liter	Cat. #11111

ANATEL® ANATOC

System Suitability

Sets – USP / EP

Three bottles: (1) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss.

USP System Suitability	125 mL	Cat. #18025
USP System Suitability	250 mL	Cat. #18050
USP System Suitability	500 mL	Cat. #18100

Calibration

Individual

Calibration Blank	125 mL	Cat. #10015
Calibration Blank	250 mL	Cat. #10025
Calibration Blank	500 mL	Cat. #10100
0.250 mg/L C NIST KHP	125 mL	Cat. #11720
0.250 mg/L C NIST KHP	250 mL	Cat. #11721
0.250 mg/L C NIST KHP	500 mL	Cat. #11722
0.500 mg/L C NIST KHP	125 mL	Cat. #11730
0.500 mg/L C NIST KHP	250 mL	Cat. #11735
0.500 mg/L C NIST KHP	500 mL	Cat. #11750
1.00 mg/L C NIST KHP	125 mL	Cat. #11810
1.00 mg/L C NIST KHP	250 mL	Cat. #11820
1.00 mg/L C NIST KHP	500 mL	Cat. #11900
1000 mg/L C NIST KHP	500 mL	Cat. #13299



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500RL USP <643> 400ES ISO 17025
 $C_8H_5KO_4$ 1,4-benzoquinone ISO Guide 34
 Rss NaHCO₃ Sucrose Persulfate Global Service
 Response Efficiency Rs Carbon CRMs CoFA
 Certified Reference Material RW
 $C_{12}H_{22}O_{11}$ Model 800 USP Combustion TOC Model 900
 EP 2.2.44 Accuracy Model 900
 $C_6H_4O_2$ KHP Vials Validation Certainty Certified System Suitability Ultraviolet Total Organic Carbon Accredited
 NIST Traceable

SIEVERS®

GE Analytical Instruments are manufacturers of Sievers-brand Total Organic Carbon analyzers. Combine an industry leader for TOC instrumentation with an ISO Guide 34 accredited supplier of TOC reference standards by purchasing the finest standards available for your instrument: ERA-brand CRMs.

System Suitability

Sets – USP / EP

Three vials: (1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability. <i>Replaces Sievers STD 31004</i>	40 mL	Cat. #18000
USP System Suitability	125 mL	Cat. #18025
USP System Suitability	250 mL	Cat. #18050
USP System Suitability	500 mL	Cat. #18100
USP System Suitability	1 Liter	Cat. #18200

Individual – USP / EP

USP Reagent Water (Rw)	40 mL	Cat. #18001
USP Reagent Water (Rw)	125 mL	Cat. #18026
USP Reagent Water (Rw)	250 mL	Cat. #18051
USP Reagent Water (Rw)	500 mL	Cat. #18101
USP Reagent Water (Rw)	1 Liter	Cat. #18201
0.500 mg/L C from USP Sucrose (Rs)	40 mL	Cat. #18002
0.500 mg/L C from USP Sucrose (Rs)	125 mL	Cat. #18027
0.500 mg/L C from USP Sucrose (Rs)	250 mL	Cat. #18052
0.500 mg/L C from USP Sucrose (Rs)	500 mL	Cat. #18102
0.500 mg/L C from USP Sucrose (Rs)	1 Liter	Cat. #18202

Individual – USP / EP (continued)

0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18003
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18028
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	250 mL	Cat. #18053
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18103
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	1 Liter	Cat. #18203

Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18000J
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Individual – Japan Pharmacopoeia (JP)

Reagent Water (Rw)	40 mL	Cat. #18001J
0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18037



From left to right:
Minesh Tailor, Production Technician; **Nick Hughes**, Junior Production Technician; **Caroline Ball**, Senior Production Technician

SIEVERS® 900

Calibration

Kits

Linearity Set

Four vials: (1) blank, (1) 0.250 mg/L C NIST KHP, (1) 0.500 mg/L C NIST KHP and (1) 0.750 mg/L C KHP. 40 mL Cat. #19515
Replaces Sievers STD 31012.

Calibration & Verification Set

Six vials: (2) blank, (2) 1.0 mg/L IC NIST NaHCO₃, (1) 1.0 mg/L C NIST KHP and (1) 1.00 mg/L C NIST Sucrose. 40 mL Cat. #19600
Replaces Sievers STD 90016.

Multi-Point Calibration Set

11 vials: (1) blank, (1) each of 1.00, 5.00, 10.0, 25.0 and 50.0 mg/L C NIST KHP, (1) each of 1.00, 5.00, 10.0, 25.0 and 50.0 mg/L IC NIST NaHCO₃. 40 mL Cat. #19610
Replaces Sievers STD 90000.

Autoreagents Calibration Set

Four vials: (1) blank, (1) 25.0 mg/L C NIST KHP, (1) 25 mg/L IC NIST NaHCO₃ and (1) 50.0 mg/L C from Nicotinamide. 40 mL Cat. #19611
Replaces Sievers STD 90036.

Calibration Kit

Three vials: (1) Blank, (1) 1.00 ppm NIST KHP and (1) 1.00 ppm NaHCO₃. 40 mL Cat. #19620

Ultra Low-Level TOC CRMs Kit

12 vials: (3) TOC Water Blanks, (1) each of 0.050, 0.060, 0.070, 0.080, 0.090, 0.100, 0.250, 0.500 and 1.00 mg/L C from NIST KHP. 40 mL Cat. #14200

Validation

Kits

Linearity Set

Four vials: (1) blank, (1) 0.250 mg/L C NIST KHP, (1) 0.500 mg/L C NIST KHP and (1) 0.750 mg/L C KHP. 40 mL Cat. #19515
Replaces Sievers STD 31012.

Consumables

Filters and Tubing

60 Micron in-line Stainless Filter	each	Cat. #25035
Replacement pump tubing for Sievers 900	each	Cat. #20060

Lamps

Replacement UV Lamp for Sievers 900	each	Cat. #20045
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Reagents

Phosphoric Acid Reagent Cartridge	150 mL	Cat. #21000
Phosphoric Acid Reagent Cartridge	300 mL	Cat. #21001
Persulfate Oxider Reagent Cartridge	150 mL	Cat. #21005
Persulfate Oxider Reagent Cartridge	300 mL	Cat. #21006

Vials

40 mL Ultra-low TOC Vials	80/cs	Cat. #25025
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System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability <i>Replaces Sievers STD 31004</i>	40 mL	Cat. #18000
USP System Suitability	125 mL	Cat. #18025
USP System Suitability	250 mL	Cat. #18100
USP System Suitability	500 mL	Cat. #18100
USP System Suitability	1 Liter	Cat. #18200

Individual – USP / EP

USP Reagent Water (Rw)	40 mL	Cat. #18001
USP Reagent Water (Rw)	125 mL	Cat. #18026
USP Reagent Water (Rw)	250 mL	Cat. #18051
USP Reagent Water (Rw)	500 mL	Cat. #18101
USP Reagent Water (Rw)	1 Liter	Cat. #18201
0.500 mg/L C from USP Sucrose (Rs)	40 mL	Cat. #18002
0.500 mg/L C from USP Sucrose (Rs)	125 mL	Cat. #18027
0.500 mg/L C from USP Sucrose (Rs)	250 mL	Cat. #18052
0.500 mg/L C from USP Sucrose (Rs)	500 mL	Cat. #18102
0.500 mg/L C from USP Sucrose (Rs)	1 Liter	Cat. #18202
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18003
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18028
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	250 mL	Cat. #18053
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18103
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	1 Liter	Cat. #18203

Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)

Individual – Japan Pharmacopoeia (JP)

Reagent Water (Rw)	40 mL	Cat. #18001J
0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18037

Calibration

Kits

Autosampler Calibration Set

12 vials: (4) blanks, (4) 25.0 mg/L C NIST KHP, (4) 25.0 mg/L IC NIST NaHCO₃.
Replaces Sievers STD 31002.

40 mL Cat. #19500

Grab Mode Calibration Set

Six vials: (2) blanks, (2) 25.0 mg/L C NIST KHP, (2) 25.0 mg/L IC NIST NaHCO₃.
Replaces Sievers STD 31001.

40 mL Cat. #19510

Linearity Set

Four vials: (1) blank, (1) 0.250 mg/L C NIST KHP, (1) 0.500 mg/L C NIST KHP, (1) 0.750 mg/L C KHP.
Replaces Sievers STD 31012.

40 mL Cat. #19515

Validation

Kits

Low Level Validation Set

37 vials: (10) blanks, (4) 25.0 mg/L C NIST KHP, (4) 25.0 mg/L IC NIST NaHCO₃, (2) 0.250 mg/L C NIST KHP, (9) 0.500 mg/L C NIST KHP, (2) 0.750 mg/L C NIST KHP, and (2) USP System Suitability Sets.
Replaces Sievers STD 38101.

40 mL Cat. #19520

Consumables

Reagents

Phosphoric Acid Reagent Cartridge	150 mL	Cat. #21000
Phosphoric Acid Reagent Cartridge	300 mL	Cat. #21001
Persulfate Oxider Reagent Cartridge	150 mL	Cat. #21005
Persulfate Oxider Reagent Cartridge	300 mL	Cat. #21006

Replacement Parts

Replacement UV Lamp for Sievers Model 400	each	Cat. #20040
60 Micron in-line Stainless Filter	each	Cat. #25035
Fan filter for Sievers 800	each	Cat. #25040
Replacement pump tubing for Sievers 800	each	Cat. #20050

SIEVERS® 500 RL

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs, (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss and (1) Rinse Water Standard.

USP System Suitability	40 mL	Cat. #15105
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Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18000J
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Validation

Kits

Linearity Set

(1) each 250 µg C/L, 500 µg C/L, 750 µg C/L as KHP and (1) Linearity Blank. <i>Replaces Sievers CSTD74406.</i>	Cat. #15106
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Single-Point Validation Set

(1) Single Point Calibration Set, (1) Accuracy/Precision & Verification Sets, (1) System Suitability Set and (1) Linearity Set. <i>Replaces Sievers CSTD 74613.</i>	Cat. #15107
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Multi-Point Validation Set

(1) Multi-Point Calibration Set, (2) Accuracy/Precision & Verification Sets, (1) System Suitability Set and (1) Linearity Set. <i>Replaces Sievers CSTD 74615.</i>	Cat. #15108
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Calibration

RL (Standard IOS) Single-Use CRMs

Single-Point Calibration Set

(2) Calibration Blanks, (1) 1.5 mg C/L TOC Calibration Standard (as KHP) and (1) 25 µS/cm Conductivity Standard (as HCl). <i>Replaces Sievers CSTD 74401.</i>	Cat. #15100
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Single-Point Calibration/Verification Set

(1) Single Point Calibration Set and (1) Accuracy/Precision & Verification Set. <i>Replaces Sievers CSTD 74612.</i>	Cat. #15101
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Multi-Point Calibration Set

(3) Calibration Blanks, (3) TOC Calibration Standards (500 µg C/L, 1.0 mg C/L, 1.5 mg C/L as KHP) and (1) 25 µS/cm Conductivity Standard (as HCl). <i>Replaces Sievers CSTD 74614.</i>	Cat. #15102
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Multi-Point Calibration/Verification Set

(1) Multi-Point Calibration Set and (1) Accuracy/Precision & Verification Set. <i>Replaces Sievers CSTD 74616.</i>	Cat. #15103
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Accuracy/Precision/Verification Set

(1) Verification Blank, (1) 500 µg C/L TOC Verification Standard (as NIST Sucrose) and (1) 25 µS/cm Conductivity Standard (as HCl). <i>Replaces Sievers CSTD 74402.</i>	Cat. #15104
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Single-Point Calibration Set – TOC Only

(2) Calibration Blanks and (1) 1.5 mg C/L TOC Calibration Standard (as KHP). Conductivity standards are not included in this set. <i>Replaces Sievers CSTD 74405.</i>	Cat. #15109
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RL (Standard IOS) Single-Use CRMs

Accuracy/Precision/Verification Set – TOC Only

(1) Verification Blank and (1) 500 µg C/L TOC Verification Standard (as NIST Sucrose). Conductivity standards are not included in this set. <i>Replaces Sievers CSTD 74407.</i>	Cat. #15110
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Single-Point Calibration/Verification Set – TOC Only

(1) Single Point Calibration Set and (1) Accuracy/Precision & Verification Set. Conductivity standards are not included in this set. <i>Replaces Sievers CSTD 74622.</i>	Cat. #15111
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Multi-Point Calibration Set – TOC Only

(3) Calibration Blanks, and (3) TOC Calibration Standards (500 µg C/L, 1.0 mg C/L, 1.5 mg C/L as KHP). Conductivity standards are not included in this set. <i>Replaces Sievers CSTD 74624.</i>	Cat. #15112
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Multi-Point Calibration/Verification Set – TOC Only

(1) Multi-Point Calibration Set and (1) Accuracy/Precision & Verification Set. Conductivity standards are not included in this set. <i>Replaces Sievers CSTD 74626.</i>	Cat. #15113
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System Suitability

Sets

Three vials: (1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability	30 mL	Cat. #18300
USP System Suitability	125 mL	Cat. #18030
USP System Suitability	250 mL	Cat. #18055
USP System Suitability	500 mL	Cat. #18140
USP System Suitability	1 Liter	Cat. #18240

Calibration

Kits

Three vials: (1) calibration blank, (1) 1.25 mg/L C NIST Sucrose and (1) 25 μ S/cm conductivity. 30 mL Cat. #14101

Bulk

Calibration Blank	125 mL	Cat. #10020
Calibration Blank	250 mL	Cat. #10030
Calibration Blank	500 mL	Cat. #10110
1.25 mg/L C NIST Sucrose Calibration	125 mL	Cat. #11520
1.25 mg/L C NIST Sucrose Calibration	250 mL	Cat. #11530
1.25 mg/L C NIST Sucrose Calibration	500 mL	Cat. #11601
25 μ S/cm Conductivity Calibration	125 mL	Cat. #01400
25 μ S/cm Conductivity Calibration	250 mL	Cat. #01350
25 μ S/cm Conductivity Calibration	500 mL	Cat. #01300

Single Use

Calibration Blank	30 mL	Cat. #13700
1.25 mg/L C NIST Sucrose	30 mL	Cat. #14100

Conductivity

25 μ S/cm Conductivity Calibration Cat. #02700

Consumables for 400/500

Filters and Tubing

60 Micron in-line Stainless Filter	each	Cat. #25035
Fan filter for Sievers Model 400	each	Cat. #25040
Replacement pump-tubing for Sievers Model 400	each	Cat. #20055

Lamps

Replacement UV Lamp for Sievers Model 400	each	Cat. #20040
Replacement UV Lamp for Sievers Model 500	each	Cat. #20045

Vials

30 mL Polymer Vials each Cat. #25015



From left to right:

Lara Jarusewic, Chemist; **Tami Buchner**, Lead Chemist/Production Coordinator; **Jesse Turner**, Chemistry Technician

Certified Total Organic Carbon $C_8H_5KO_4$ CRMs System Suitability ISO Guide 34
 ANALYTIK JENA TOC ISO 17025 Accredited
 EP 2.2.44 Ultraviolet R_s Combustion Service Validation Carbon R_w KHP
 N.C.UV.HS R_{ss} Sucrose N C-Pharma HS Global Persulfate TOC
 Certified Reference Material $C_{12}H_{22}O_{11}$ C of A USP Certainty $NaHCO_3$
 Accuracy 1,4-benzoquinone USP <643> Traceable Response Efficiency

ANALYTIK jENA

Leaders in the development of reliable composite parameter and elemental systems, Analytik Jena (AJ) and Lachat® analyzers satisfy many of the demands of today's diverse modern laboratory. ERA carries all of the major validation and calibration sets for AJ and Lachat Total Organic Carbon instruments.

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

AJ multi N/C pharma HS and IL550	40 mL	Cat. #18000
AJ multi N/C UV HS and IL500	40 mL	Cat. #18004
AJ multi N/C pharma HS and IL550	250 mL	Cat. #18050
AJ multi N/C UV HS and IL500	250 mL	Cat. #18049
USP System Suitability	125 mL	Cat. #18024
USP System Suitability	250 mL	Cat. #18049
USP System Suitability	500 mL	Cat. #18104
USP System Suitability	1 Liter	Cat. #18204

Individual – USP / EP

USP Reagent Water (Rw)	40 mL	Cat. #18001
USP Reagent Water (Rw)	125 mL	Cat. #18026
USP Reagent Water (Rw)	250 mL	Cat. #18051
USP Reagent Water (Rw)	500 mL	Cat. #18101
USP Reagent Water (Rw)	1 Liter	Cat. #18201
0.500 mg/L C from USP Sucrose (Rs)	40 mL	Cat. #18002
0.500 mg/L C from USP Sucrose (Rs)	125 mL	Cat. #18027
0.500 mg/L C from USP Sucrose (Rs)	250 mL	Cat. #18052
0.500 mg/L C from USP Sucrose (Rs)	500 mL	Cat. #18102
0.500 mg/L C from USP Sucrose (Rs)	1 Liter	Cat. #18202
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18003
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18028
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	250 mL	Cat. #18053
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18103
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	1 Liter	Cat. #18203

Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)

	40 mL	Cat. #18000J
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Individual – Japan Pharmacopoeia (JP)

Reagent Water (Rw)	40 mL	Cat. #18001J
0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18037

Calibration

Kits

Full TOC Calibration Kits

Eight bottles: (1) Reagent blank, (1) 1.00 mg/L C NIST KHP, (1) 2.50 mg/L C NIST KHP, (1) 5.00 mg/L C NIST KHP, (1) 10.0 mg/L C NIST KHP, (1) 25.0 mg/L C NIST KHP, (1) 50.0 mg/L C NIST KHP and (1) 100 mg/L C NIST KHP.

AJ multi N/C 2100/3100 and IL550	250 mL	Cat. #19970
AJ multi N/C UV HS and IL500	250 mL	Cat. #19971

Limited TOC Calibration Kits

Two bottles: (1) Reagent Water Blank and (1) 0.600 mg/L C USP Sucrose.

AJ multi N/C pharma HS and IL550	40 mL	Cat. #19980
AJ multi N/C UV HS and IL500	40 mL	Cat. #18981
AJ multi N/C pharma HS and IL550	250 mL	Cat. #19985
AJ multi N/C UV HS and IL500	250 mL	Cat. #19986

Cleaning Validation

Kits

Cleaning Validation Kit

Five vials /bottles: (1) Water blank, (1) 0.250 mg/L C NIST Sucrose, (1) 0.500 mg/L C NIST Sucrose, (1) 0.750 mg/L C NIST Sucrose and (1) 1.00 mg/L C NIST Sucrose.

AJ multi N/C pharma HS and IL550	40 mL	Cat. #19900
AJ multi N/C UV HS and IL500	40 mL	Cat. #19901
AJ multi N/C pharma HS and IL550	250 mL	Cat. #19910
AJ multi N/C UV HS and IL500	250 mL	Cat. #19911

Aurora Certified USP <643> OI 1010 Accuracy System Suitability ISO Guide 34
 Total Organic Carbon Persulfate Response Efficiency C₁₂H₂₂O₁₁
 TOC KHP Service NaHCO₃ CRMS C₆H₅KO₄
OI ANALYTICAL TOC
 1,4-benzoquinone Traceable ISO 17025 Accredited USP NIST C of A
 C₆H₄O₂ Validation Certainty Ultraviolet Certified Reference Material
 Carbon EP 2.2.44 Digital R_w

OI ANALYTICAL®

OI Analytical has been manufacturing TOC analyzers for ultra-low carbon analysis for more than 25 years, and has been contracted to design water quality monitoring instrumentation that currently resides on the international space station. The products below are commonly purchased for use with OI Analytical TOC instruments, including the very popular Aurora® model.

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability	40 mL	Cat. #18004
USP System Suitability	125 mL	Cat. #18024
USP System Suitability	250 mL	Cat. #18049
USP System Suitability	500 mL	Cat. #18104
USP System Suitability	1 Liter	Cat. #18204

Individual – USP / EP

USP Reagent Water (Rw)	40 mL	Cat. #18006
USP Reagent Water (Rw)	125 mL	Cat. #18029
USP Reagent Water (Rw)	250 mL	Cat. #18046
USP Reagent Water (Rw)	500 mL	Cat. #18105
USP Reagent Water (Rw)	1 Liter	Cat. #18205
0.500 mg/L C from USP Sucrose (Rs)	40 mL	Cat. #18007
0.500 mg/L C from USP Sucrose (Rs)	125 mL	Cat. #18031
0.500 mg/L C from USP Sucrose (Rs)	250 mL	Cat. #18047
0.500 mg/L C from USP Sucrose (Rs)	500 mL	Cat. #18106
0.500 mg/L C from USP Sucrose (Rs)	1 Liter	Cat. #18206
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18008
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18032
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	250 mL	Cat. #18048
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18107
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	1 Liter	Cat. #18207

Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18000J
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Individual – Japan Pharmacopoeia (JP)

Reagent Water (Rw)	40 mL	Cat. #18001J
0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18037

Validation

Kits

Validation Set–Aurora

19 bottles: (6) Water blank, (1) 0.500 mg/L C NIST KHP, (3) 1.00 mg/L C NIST KHP, (1) 5.00 mg/L C NIST KHP, (1) 10.0 mg/L C NIST KHP, (1) 25.0 mg/L C NIST KHP, (1) 5.00 mg/L C NIST KHP/50.0 mg/L IC NaHCO₃, (4) 0.500 mg/L C from USP Sucrose, (1) 0.500 mg/L C from USP 1,4-Benzoquinone.

Cat. #19007

Calibration

Kits

Ultra Low-Level TOC CRMs Kit

12 vials: (3) TOC Water Blanks, (1) each of 0.050, 0.060, 0.070, 0.080, 0.090, 0.100, 0.250, 0.500 and 1.00 mg/L C from NIST KHP.

Cat. #14203

Individual

TOC/IC Calibration Blank	40 mL	Cat. #10001
TOC/IC Calibration Blank	125 mL	Cat. #10016
0.500 mg/L C NIST KHP	40 mL	Cat. #11726
0.500 mg/L C NIST KHP	125 mL	Cat. #11731
1.00 mg/L C NIST KHP	40 mL	Cat. #11801
1.00 mg/L C NIST KHP	125 mL	Cat. #11811
5.00 mg/L C NIST KHP	40 mL	Cat. #12401
5.00 mg/L C NIST KHP	125 mL	Cat. #12411
10.0 mg/L C NIST KHP	40 mL	Cat. #12701
10.0 mg/L C NIST KHP	125 mL	Cat. #12711
25.0 mg/L C NIST KHP	40 mL	Cat. #13001
25.0 mg/L C NIST KHP	125 mL	Cat. #13021
50.0 mg/L C NIST KHP	40 mL	Cat. #13224
50.0 mg/L C NIST KHP	125 mL	Cat. #13227

Consumables

Reagents

Phosphoric Acid Reagent	1 Liter	Cat. #21016
Phosphoric Acid Reagent	2 Liter	Cat. #21018
Persulfate Oxidizer Reagent	1 Liter	Cat. #21017
Persulfate Oxidizer Reagent	2 Liter	Cat. #21019

C₆H₄O₂ Response Efficiency ISO Guide 34 Ultraviolet Accuracy
 NIST Traceable Validation Accredited TOC VW
 C₆H₅KO₄ CRMS 1,4-benzoquinone ISO 17025 Certified Reference Material
 EP 2.2.44
 Carbon SHIMADZU TOC KHP
 NaHCO₃ USP TOC USP <643> TOC V Total Organic Carbon Service
 Persulfate System Suitability C of A Combustion Certified Sucrose C₁₂H₂₂O₁₁
 R_{SS} R_w Certainty Global

SHIMADZU®

Shimadzu has a long history in TOC analysis, which has evolved to include a product line of more than half a dozen wet chemical oxidation/NDIR and Combustion catalytic oxidation/NDIR instruments. The products below are commonly purchased for use with Shimadzu TOC instruments.

Please specify at time of order whether you have a chemical or combustion Shimadzu TOC.

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability	40 mL	Cat. #18000
USP System Suitability	125 mL	Cat. #18024
USP System Suitability	250 mL	Cat. #18049
USP System Suitability	500 mL	Cat. #18104
USP System Suitability	1 Liter	Cat. #18204

Individual – USP / EP

USP Reagent Water (Rw)	40 mL	Cat. #18006
USP Reagent Water (Rw)	125 mL	Cat. #18029
USP Reagent Water (Rw)	250 mL	Cat. #18046
USP Reagent Water (Rw)	500 mL	Cat. #18105
USP Reagent Water (Rw)	1 Liter	Cat. #18205
0.500 mg/L C from USP Sucrose (Rs)	40 mL	Cat. #18007
0.500 mg/L C from USP Sucrose (Rs)	125 mL	Cat. #18031
0.500 mg/L C from USP Sucrose (Rs)	250 mL	Cat. #18047
0.500 mg/L C from USP Sucrose (Rs)	500 mL	Cat. #18106
0.500 mg/L C from USP Sucrose (Rs)	1 Liter	Cat. #18206
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18008
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18032
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	250 mL	Cat. #18048
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18107
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	1 Liter	Cat. #18207

Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)

	40 mL	Cat. #18000J
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Individual – Japan Pharmacopoeia (JP)

Rw-Reagent Water	40 mL	Cat. #18001J
0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18037

Calibration

Kits

TOC-V Multi Calibration Kit

Ten vials: (2) Blank, (2) 0.100 mg/L C NIST KHP, (2) 0.250 mg/L C NIST KHP, (2) 0.500 mg/L C NIST KHP, (1) 0.750 mg/L C NIST KHP and (1) 1.00 mg/L C NIST KHP.

	40 mL	Cat. #11005
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Individual

TOC/IC Calibration Blank	40 mL	Cat. #10001
0.100 mg/L C NIST KHP	40 mL	Cat. #11673
0.250 mg/L C NIST KHP	40 mL	Cat. #11678
0.500 mg/L C NIST KHP	40 mL	Cat. #11726
0.750 mg/L C NIST KHP	40 mL	Cat. #11781
1.00 mg/L C NIST KHP	40 mL	Cat. #11801
5.00 mg/L C NIST KHP	40 mL	Cat. #12401
10.0 mg/L C NIST KHP	40 mL	Cat. #12701
25.0 mg/L C NIST KHP	40 mL	Cat. #13001
50.0 mg/L C NIST KHP	40 mL	Cat. #13224

Validation

Kits

TOC-V Validation Kit

Three bottles: (1) Blank and (2) 100.0 mg/L C NIST KHP.

	125 mL	Cat. #11002
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TOC-V HS Validation Kit

Three bottles: (1) Blank and (2) 10.0 mg/L C NIST KHP.

	125 mL	Cat. #11003
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TOC-V Wet Chem Validation Kit

Nine vials: (3) Blank and (2) 0.500 mg/L C NIST KHP, (4) 1.00 mg/L C NIST KHP.

	40 mL	Cat. #11004
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Consumables

Reagents

Phosphoric Acid Reagent	1 Liter	Cat. #21016
Phosphoric Acid Reagent	2 Liter	Cat. #21018
Persulfate Oxidizer Reagent	1 Liter	Cat. #21017
Persulfate Oxidizer Reagent	2 Liter	Cat. #21019

Accredited ^{Ultraviolet} Fusion USP <643> ISO Guide 34 ^{Carbon} USP
 Certified Reference Material
 TELEDYNE ^{Rw} ^{Validation} TEKMAR ^{KHP} TOC ^{C of A}
^{C₈H₅KO₄} Traceable ^{System Suitability} ^{NaHCO₃} ^{RS} Certified CRMs ^{Combustion}
 Total Organic Carbon ^{ISO 17025} Phoenix ^{Accuracy} ^{Certainty} ^{C₆H₄O₂} ^{Service} ^{EP 2.2.44}
^{C₁₂H₂₂O₁₁} ^{NIST} TOC ^{1,4 benzoquinone} ^{Response Efficiency} ^{Global} ^{Persulfate}

TELEDYNE TEKMAR®

With roots that can be traced back to the company founded in 1960 by Bruce Dohrmann, Teledyne Tekmar marks nearly 35 years as a pioneer in the development of TOC technologies when it released the TOC Fusion in 2005. ERA offers a comprehensive suite of calibration and validation CRMs designed specifically for Tekmar TOC instruments.

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss. 40 mL Cat. #18004

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability	125 mL	Cat. #18024
USP System Suitability	250 mL	Cat. #18049
USP System Suitability	500 mL	Cat. #18104
USP System Suitability	1 Liter	Cat. #18204

Individual – USP / EP

USP Reagent Water (Rw)	40 mL	Cat. #18006
USP Reagent Water (Rw)	125 mL	Cat. #18029
USP Reagent Water (Rw)	250 mL	Cat. #18046
USP Reagent Water (Rw)	500 mL	Cat. #18105
USP Reagent Water (Rw)	1 Liter	Cat. #18205

0.500 mg/L C from USP Sucrose (Rs)	40 mL	Cat. #18007
0.500 mg/L C from USP Sucrose (Rs)	125 mL	Cat. #18031
0.500 mg/L C from USP Sucrose (Rs)	250 mL	Cat. #18047
0.500 mg/L C from USP Sucrose (Rs)	500 mL	Cat. #18106
0.500 mg/L C from USP Sucrose (Rs)	1 Liter	Cat. #18206
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18008
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18032
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	250 mL	Cat. #18048
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18107
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	1 Liter	Cat. #18207

Sets – Japan Pharmacopoeia (JP)

Two vials: (1) Reagent Water (Rw) and one 0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss) 40 mL Cat. #18000J

Individual – Japan Pharmacopoeia (JP)

Reagent Water (Rw)	40 mL	Cat. #18001J
0.500 mg/L C from Sodium Dodecylbenzene Sulfonate (Rss)	40 mL	Cat. #18037

Calibration

Kits

Ultra Low-Level TOC CRMs Kit

12 vials includes (3) TOC Water Blanks, (1) each of 0.050, 0.060, 0.070, 0.080, 0.090, 0.100, 0.250, 0.500 and 1.00 mg/L C from NIST KHP. Cat. #14203

Individual

TOC/IC Calibration Blank	40 mL	Cat. #10001
TOC/IC Calibration Blank	125 mL	Cat. #10016
0.500 mg/L C NIST KHP	40 mL	Cat. #11726
0.500 mg/L C NIST KHP	125 mL	Cat. #11731
1.00 mg/L C NIST KHP	40 mL	Cat. #11801
1.00 mg/L C NIST KHP	125 mL	Cat. #11811
5.00 mg/L C NIST KHP	40 mL	Cat. #12401
5.00 mg/L C NIST KHP	125 mL	Cat. #12411
10.0 mg/L C NIST KHP	40 mL	Cat. #12701
10.0 mg/L C NIST KHP	125 mL	Cat. #12711
25.0 mg/L C NIST KHP	40 mL	Cat. #13001
25.0 mg/L C NIST KHP	125 mL	Cat. #13021
50.0 mg/L C NIST KHP	40 mL	Cat. #13224
50.0 mg/L C NIST KHP	125 mL	Cat. #13227
USP Reagent Water (Rw)	40 mL	Cat. #18006
USP Reagent Water (Rw)	125 mL	Cat. #18029
0.500 mg/L C USP Sucrose (Rs)	40 mL	Cat. #18007
0.500 mg/L C USP Sucrose (Rs)	125 mL	Cat. #18031
0.500 mg/L C USP 1,4-Benzoquinone (Rss)	40 mL	Cat. #18008
0.500 mg/L C USP 1,4-Benzoquinone (Rss)	125 mL	Cat. #18032

TELEDYNE TEKMAR

Validation

Kits

Validation Set–Phoenix®

18 vials: (2) Blanks, (3) 0.500 mg/L C NIST KHP, (6) 1.00 mg/L C NIST KHP, (1) 2.00 mg/L C NIST KHP, (1) 5.00 mg/L C NIST KHP, (1) 50.0 mg/L C NIST KHP, (1) 100 mg/L IC NaHCO₃, (1) USP Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss. 40 mL Cat. #19002

Validation Set–Fusion®

12 vials and one 125 mL bottle, (3) Blanks, (3) 1.00 mg/L C NIST KHP, (1) 125 mL 5.00 mg/L C NIST KHP, (1) 10.0 mg/L C NIST KHP, (1) 25.0 mg/L IC NaHCO₃, (1) USP Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss. 40 mL Cat. #19004

Consumables

Reagents

Phosphoric Acid Reagent	1 Liter	Cat. #21016
Phosphoric Acid Reagent	2 Liter	Cat. #21018
Persulfate Oxidizer Reagent	1 Liter	Cat. #21017
Persulfate Oxidizer Reagent	2 Liter	Cat. #21019



From left to right:
Paul Battle, Chemist; **Veronica Starkey**, Chemist; **Kit Beikmann**, Chemistry Technician; **Leo Munoz**, Production Technician



From left to right:

Heidi Senft, Customer Service Representative; **Debby Updyke**, Customer Service Representative; **Jason Furness**, Customer Service Manager; **Darren Sauer**, Customer Service Representative; **Sylvia Lowe**, International Customer Service Representative; **Jennifer Watson**, Customer Service Representative



From left to right:

Brian Stringer, PT/Customer Service Representative; **GG Galarneau**, Director of Operations; **Audrey Cornell**, PT/Customer Service Representative; **Pat Maloney**, PT/Customer Service Representative; **Ellen LaRiviere**, PT/Customer Service Representative



Accuracy
 Service
 Response Efficiency
 1,4-benzoquinone
 USP <643>
 System Suitability
 Certified
 Sucrose
 NaHCO₃
 TOC
 Persulfate
 Certified Reference Material
 Accredited
 C₆H₅KO₄
 KHP
 Validation
 ANATEL
 Combustion
 EP 2.2.44
 MIST
 Global
 THORNTON TOC
 TOC5000
 Ultraviolet
 C₆H₄O₂
 USP
 R_{ss}
 C₁₂H₂₂O₁₁
 ISO Guide 34
 Total Organic Carbon
 ISO 17025
 C of A
 502P
 R_w
 Carbon
 Certainty
 CRMs
 Traceable

THORNTON®

Mettler-Toledo Thornton develops and manufactures instrumentation and sensors used for liquid process measurement and control in pure water applications, with extensive experience measuring resistivity/conductivity and TOC specifically. ERA offers the highest quality calibration and system suitability kits for your Thornton 5000 TOC meters. For conductivity we offer validation kits that allow an accurate, verifiable, and FDA-compliant approach to validating the sensors you use for USP <645> methods or your own. Please see pages 40–43 for a complete line of conductivity CRMs.

System Suitability

Sets – USP / EP

(2) Blanks Rw,(1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.	500 mL	Cat. #18151
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Individual – USP / EP

USP Reagent Water Rw	500 mL	Cat. #18144
0.500 mg/L C from USP Sucrose(RS)	500 mL	Cat. #18145
0.500 mg/L C from USP 1,4-Benzoquinone (Rss)	500 mL	Cat. #18146

Calibration

Kits

(2) Calibration Blank, (1) 0.250 mg/L C Sucrose and (1) 0.500 mg/L C Sucrose	500 mL	Cat. #11414
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Individual

Calibration Blank	500 mL	Cat. #11411
0.250 mg/L C from NIST Sucrose	500 mL	Cat. #11412
0.500 mg/L C from NIST Sucrose	500 mL	Cat. #11413
1.25 mg/L C NIST Sucrose Calibration	500 mL	Cat. #11601



From left to right:

Melissa Wright, Sales Representative; **Heidi White**, Corporate Account Executive; **Melissa McNamara**, Director of Sales; **Rick Persichitte**, Sales Representative; **Tanya Rahn**, Sales Representative

Validation ISO 17025 Ultraviolet Traceable EP 2.2.44 USP TOC
LIGHTHOUSE NIST 1,4-benzoquinone
C₁₂H₂₂O₁₁ Persulfate Accuracy Carbon Rss KHP
Certified **SWAN** C₈H₅KO₄ Service C₆H₄O₂ **Certainty** Global C of A R_w Combustion
Accredited **ISO Guide 34** C₆H₄O₂
Sucrose **COMET** Response Efficiency
CRMs Total Organic Carbon NaHCO₃ System Suitability
Certified Reference Material **USP <643>**

OTHER TOC INSTRUMENTS

COMET ANALYTICS

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss.

USP System Suitability 250 mL Cat. #18055

SWAN ANALYTICAL

System Suitability

Sets – USP / EP

(1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs and (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss.

USP System Suitability 250 mL Cat. #18055

LIGHTHOUSE

Calibration

Kits

(2) Blanks, (1) 0.250 mg/L C NIST Sucrose, (1) 0.500 mg/L C NIST Sucrose and (1) 0.750 mg/L C NIST Sucrose 60 mL Cat. #19200

System Suitability

Kits

(2) Reagent Water Rw, (1) 0.500 mg/L C USP Sucrose Rs and (1) 0.500 mg/L C USP 1,4-Benzoquinone Rss. 60 mL Cat. #18400

Calibration

Kits

Two bottles: 1 Blank and (1) 1.0 ppm Sucrose 250 mL Cat. #10035S



From left to right:

Harlan Mott, Application Engineer; **Anthony Chiesi**, Application Engineer; **Darwin Baxter**, Application Engineer; **Paul Fabrizio**, Systems Engineer; **Patrick Scribner**, Director of Information Services

REFERENCE STANDARDS

Inorganic Carbon
Specialized
Sulfuric acid
Quality Gallon
Total organic carbon
ISO Guide 34
Sodium hydroxide
TOC
Confidence Analysis
Certified value
Pint
Manufacture
Stable
USP
Hydrochloric acid
pH Buffers
Filter break monitoring
EDTA
Potassium hydroxide
Turbidimetric validation
Custom formulations
High Purity Water
Low TOC Water
Purified
Reagents
Turbidity
Laboratory analysis
Ultra pure water
Certified Reference Materials
NTU
Liter

REFERENCE STANDARDS

Reference Standards

Inorganic Carbon	34
Turbidity	35
High-Purity Water	36
pH	38
Reagents	38–39

INORGANIC CARBON

A material derived from non-living sources, inorganic carbon (IC) exists in pharmaceutical waters as carbonate, bicarbonate and dissolved carbon dioxide (CO₂). Whether your instrument quantifies IC as part of a differential calculation or removes it as part of a “non-purgeable” method of TOC determination, your instrument’s ability to remove and/or measure IC must be validated. Below are the most commonly requested IC concentrations for calibration and validation of TOC instrumentation.

Individual CRMs for Inorganic Carbon

0.500 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #15990
0.500 mg/L IC from NIST NaHCO ₃	125 mL	Cat. #15995
0.500 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #15992
1.00 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #16000
1.00 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #16100
1.00 mg/L IC from NIST NaHCO ₃	1 Liter	Cat. #16200
5.00 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #16300
5.00 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #16400
5.00 mg/L IC from NIST NaHCO ₃	1 Liter	Cat. #16500
10.0 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #16600
10.0 mg/L IC from NIST NaHCO ₃	125 mL	Cat. #16620
10.0 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #16700
10.0 mg/L IC from NIST NaHCO ₃	1 Liter	Cat. #16800
20.0 mg/L IC from NIST NaHCO ₃	125 mL	Cat. #12904
25.0 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #16900
25.0 mg/L IC from NIST NaHCO ₃	125 mL	Cat. #16920
25.0 mg/L IC from NIST NaHCO ₃	250 mL	Cat. #16940
25.0 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #17000
25.0 mg/L IC from NIST NaHCO ₃	1 Liter	Cat. #17100

50.0 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #17130
100.0 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #17150
100.0 mg/L IC from NIST NaHCO ₃	125 mL	Cat. #17153
100.0 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #17160
100.0 mg/L IC from NIST NaHCO ₃	1 Liter	Cat. #17170
1000 mg/L IC from NIST NaHCO ₃	250 mL	Cat. #17154
2.50 mg/L C from NIST KHP and 25.0 mg/L IC from NIST NaHCO ₃	40 mL	Cat. #12403
2.50 mg/L C from NIST KHP and 25.0 mg/L IC from NIST NaHCO ₃	500 mL	Cat. #12404
2.50 mg/L C from NIST KHP and 25.0 mg/L IC from NIST NaHCO ₃	125 mL	Cat. #12405
2.50 mg/L C from NIST KHP and 25.0 mg/L IC from NIST NaHCO ₃	250 mL	Cat. #12406



From left to right:
David Kilhefner, Director of Manufacturing; **Kristina Sanchez**, Quality Manager;
Mitch Fonda, Director of Business Development; **Lisa Berry**, Director of Production Planning; **Jay McBurney**, Quality Program Manager

[W]

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[T]

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[E]

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TURBIDITY

ISO Guide 34 accredited since 2008, ERA is a certified reference materials producer and has been manufacturing reference standards for inorganic carbon, conductivity and turbidity analysis for more than 30 years. ERA is also a supplier of ultra-clean inorganic acids and reagents. Whether your application is ultra-pure water TOC analysis or metals analysis via ICP-MS, ERA has the right calibration material for you.

ERA's turbidity products are manufactured under our ISO Guide 34 accreditation as a reference material producer and are designed specifically for pharmaceutical turbidimetric validation, calibration and monitoring applications. Whether our customers are performing particle content/concentration monitoring for fermentation progress or filter break monitoring, we guarantee your satisfaction with ERA turbidity reference materials. Our custom product group is always happy to fulfill specialized customer requests. If there is a turbidity product you are looking for that you don't see here, please contact us at customs@eraqc.com or 1-800-372-0122.

Bulk

25 NTU	1 Liter	Cat. #14105
50 NTU	1 Liter	Cat. #14106
100 NTU	1 Liter	Cat. #14107
150 NTU	1 Liter	Cat. #14108
175 NTU	1 Liter	Cat. #14109
200 NTU	1 Liter	Cat. #14110
250 NTU	1 Liter	Cat. #14111
300 NTU	1 Liter	Cat. #14112
350 NTU	1 Liter	Cat. #14113
400 NTU	1 Liter	Cat. #14114
450 NTU	1 Liter	Cat. #14115
500 NTU	1 Liter	Cat. #14116

Sets

Standard NTU Set

1 liter of each: 25 NTU, 50 NTU, 100 NTU, 175 NTU and 250 NTU)

Cat. #14117

High NTU Set

1 liter of each: 50 NTU, 100 NTU, 200 NTU, 300 NTU, 400 NTU and 500 NTU

Cat. #14118

Low NTU Set

1 liter of each: 0.1 NTU, 25 NTU, 50 NTU, 100 NTU and 175 NTU

Cat. #14119



From left to right:

Gabe King, Production Technician; **Jeff Chory**, Chemistry Technician; **Katherine Balkun**, Research Chemist; **Sean Skrip**, Chemistry Technician; **Leiph Roope**, Chemist

HIGH-PURITY WATER

ERA offers certified low-TOC water suitable for use with your TOC or liquid chromatography system. All of our waters are prepared with the highest level of care throughout the Ion-Exchange-Filtration-RO-UV purification process. Our waters must pass a rigorous testing scheme and we guarantee the analysis of each bottle as well as your satisfaction.

USP Purified–Certified Low TOC Water

USP purified Low TOC Water	4 Liter	Cat. # PW10000
USP purified Low TOC Water	4 x 4 Liter case	Cat. # PW10005

Guaranteed Specifications:

pH	5–7
Residue after Evaporation	1 mg/L max.
Conductivity (at Bottling)	1.1 µS/cm max @ 20 °C
Total Organic Carbon	50 ppb max.
Total Bacterial Count	< 10 cfu/mL
Color (APHA)	5 max.
Absorbance	0.1 au max.

Elemental Analysis:

Ag (Silver)	Max. 0.0004 mg/L	Fe (Iron)	Max. 0.001 mg/L
Al (Aluminium)	Max. 0.002 mg/L	Mn (Manganese)	Max. 0.0004 mg/L
As (Arsenic)	Max. 0.002 mg/L	Mo (Molybdenum)	Max. 0.002 mg/L
B (Boron)	Max. 0.005 mg/L	Ni (Nickel)	Max. 0.0004 mg/L
Ba (Barium)	Max. 0.001 mg/L	Pb (Lead)	Max. 0.001 mg/L
Be (Beryllium)	Max. 0.002 mg/L	Sb (Antimony)	Max. 0.001 mg/L
Cd (Cadmium)	Max. 0.001 mg/L	Se (Selenium)	Max. 0.0001 mg/L
Co (Cobalt)	Max. 0.001 mg/L	Sr (Strontium)	Max. 0.0004 mg/L
Cr (Chromium)	Max. 0.0004 mg/L	Tl (Thallium)	Max. 0.00005 mg/L
Cu (Copper)	Max. 0.0004 mg/L		



From left to right:

Maya Chain, Senior Accountant; **Kristi Medley**, Director of Finance; **Ellen Giesbrecht**, Accounts Payable; **Isabelle De Leon**, Receptionist/Accounting Assistant; **June Marx**, Accounting/Human Resources Administrator; **Cybil Sandusky**, Executive Administrative Assistant; **Kathleen De La Cruz**, Accounts Receivable



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REAGENTS

ERA manufactures industrial reagents with tolerances of $\pm 0.5\%$, and will hold the certified value lot to lot within 0.5%. Our NIST-traceable reagents are shipped with a Certificate of Analysis and are homogenous at a 95% confidence interval. If you have been looking for a company to manufacture high quality, stable, consistent reagents for your specialized needs, please contact our reagent group today for a quote: customs@eraqc.com or 1-800-372-0122.

ERA manufactures many reagents for standard laboratory analysis as well as custom formulations to accommodate customer needs.

pH

pH 2 Buffer, No Color	1 Pint	Cat. #183004
pH 2 Buffer, No Color	1 Liter	Cat. #183184
pH 2 Buffer, No Color	1 Gallon	Cat. #187027
pH 2 Buffer, No Color	5 Gallon	Cat. #183186
pH 4 Buffer, No Color	1 Pint	Cat. #183005
pH 4 Buffer, No Color	1 Liter	Cat. #183180
pH 4 Buffer, No Color	1 Gallon	Cat. #183181
pH 4 Buffer, No Color	5 Gallon	Cat. #183182
pH 6 Concentrated Buffer, No Color	2.5 Liter	Cat. #183012
pH 7 Buffer, No Color	1 Pint	Cat. #183006
pH 7 Buffer, No Color	1 Liter	Cat. #183187
pH 7 Concentrated Buffer, No Color	2.5 Liter	Cat. #183013
pH 7 Buffer, No Color	1 Gallon	Cat. #183188
pH 7 Buffer, No Color	5 Gallon	Cat. #183189
pH 10 Buffer, No Color	1 Pint	Cat. #183007
pH 10 Buffer, No Color	1 Liter	Cat. #183190
pH 10 Buffer, No Color	1 Gallon	Cat. #183191
pH 10 Buffer, No Color	5 Gallon	Cat. #183192
pH 4 Buffer, Red	1 Gallon	Cat. #187026
pH 4 Buffer, Red	5 Gallon	Cat. #183217
pH 7 Buffer, Yellow	1 Gallon	Cat. #187028
pH 7 Buffer, Yellow	5 Gallon	Cat. #183218
pH 10 Buffer, Blue	1 Gallon	Cat. #187029
pH 10 Buffer, Blue	5 Gallon	Cat. #183219

pH Buffers

ERA Cal pH Buffers are directly traceable to NIST SRMs, mercury free, guaranteed stable for at least one year after your receipt, and are supplied with a full certificate of analysis. Choose single bottles or convenient 6-bottle cases.

Value	Volume	Single Bottles	Case of 6 Bottles
pH 4.00 (red)	1 pint	Cat. #127	Cat. #128
pH 7.00 (yellow)	1 pint	Cat. #131	Cat. #132
pH 10.00 (green)	1 pint	Cat. #135	Cat. #136
Case of 2 each	1 pint	—	Cat. #141

Hydrochloric Acid

0.01N	1 Liter	Cat. #183026
0.01N	1 Gallon	Cat. #183028
0.01N	5 Gallon	Cat. #187503
0.1N	1 Liter	Cat. #183030
0.1N	2.5 Liter	Cat. #183010
0.1N	1 Gallon	Cat. #183032
0.1N	5 Gallon	Cat. #187506
0.25N	1 Liter	Cat. #183034
0.25N	1 Gallon	Cat. #183036
0.25N	5 Gallon	Cat. #187507
0.5N	1 Liter	Cat. #183038
0.5N	1 Gallon	Cat. #183040
0.5N	5 Gallon	Cat. #187508
0.645N	5 Gallon	Cat. #183016
1.0N	1 Liter	Cat. #183042
1.0N	1 Gallon	Cat. #183044
1.0N	5 Gallon	Cat. #187510
Hydrochloric Acid in IPA – 0.1N	1 Liter	Cat. #184001

Sulfuric Acid

0.01N	1 Liter	Cat. #183048
0.01N	1 Gallon	Cat. #183049
0.02N	1 Liter	Cat. #183050
0.02N	1 Gallon	Cat. #183052
0.02N	5 Gallon	Cat. #187511
0.05N	1 Liter	Cat. #183003
0.1N	1 Liter	Cat. #183054
0.1N	1 Gallon	Cat. #183056
0.1N	5 Gallon	Cat. #187512
0.2N	1 Liter	Cat. #183058
0.2N	1 Gallon	Cat. #183060
0.2N	5 Gallon	Cat. #187514
0.5N	1 Liter	Cat. #183062
0.5N	1 Gallon	Cat. #183064
1.0N	1 Liter	Cat. #183066
1.0N	1 Gallon	Cat. #183068
1.0N	5 Gallon	Cat. #187515

EDTA

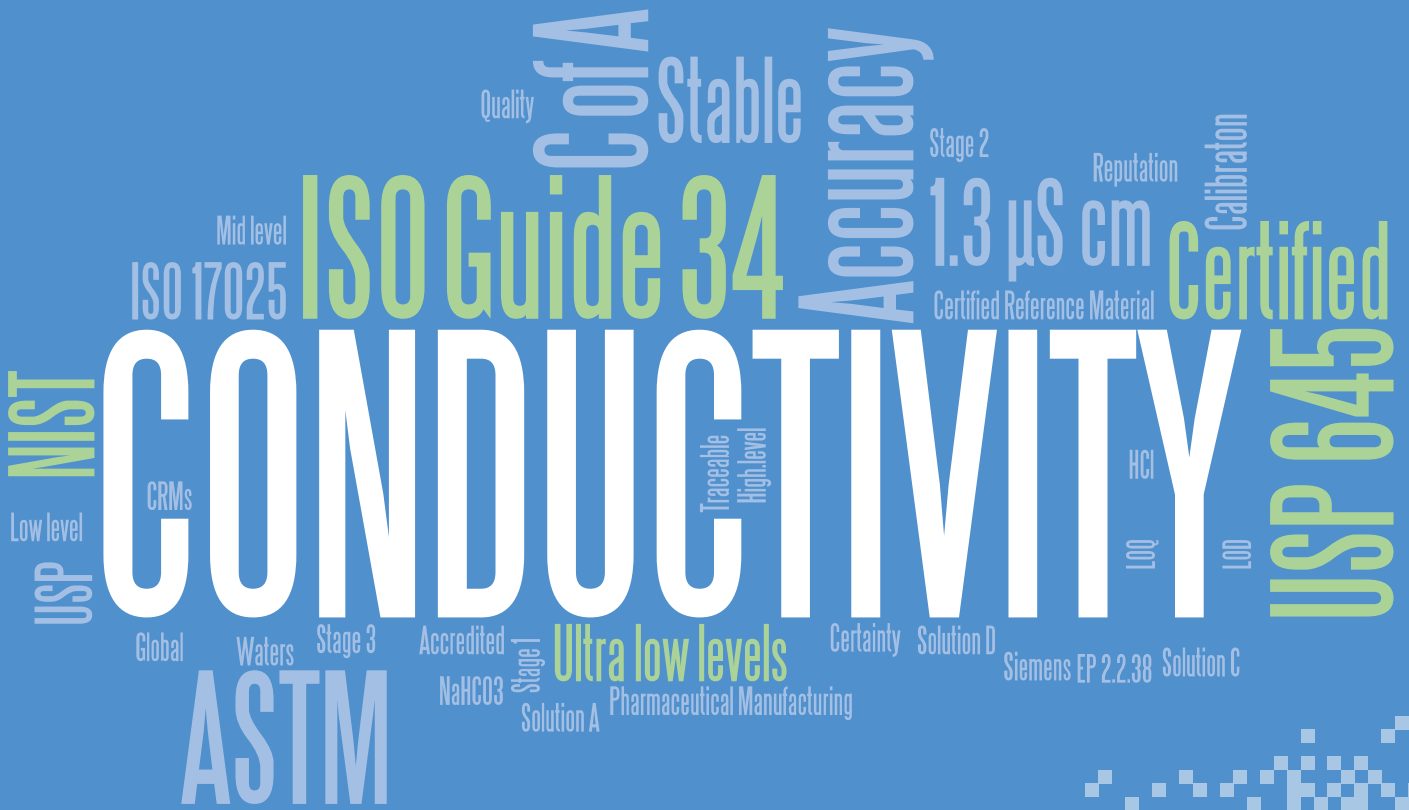
0.01M	1 Gallon	Cat. #183160
0.1M	1 Liter	Cat. #183118
0.1M	1 Gallon	Cat. #183120
0.1M	5 Gallon	Cat. #187525

Potassium Hydroxide

0.01N	1 Liter	Cat. #183090
0.01N	1 Gallon	Cat. #183092
0.01N	5 Gallon	Cat. #187521
0.1N	1 Liter	Cat. #183094
0.1N	1 Gallon	Cat. #183096
0.1N	5 Gallon	Cat. #187522
0.25N	1 Liter	Cat. #183098
0.25N	1 Gallon	Cat. #183100
0.25N	5 Gallon	Cat. #187523
0.5N	1 Liter	Cat. #183102
0.5N	1 Gallon	Cat. #183104
0.5N	5 Gallon	Cat. #187524
Potassium Hydroxide in IPA – 0.1N	1 Gallon	Cat. #183211

Sodium Hydroxide

0.01N	1 Liter	Cat. #183070
0.01N	1 Gallon	Cat. #183072
0.01N	5 Gallon	Cat. #187516
0.1N	1 Liter	Cat. #183074
0.1N	1 Gallon	Cat. #183076
0.1N	5 Gallon	Cat. #187517
0.25N	1 Liter	Cat. #183078
0.25N	1 Gallon	Cat. #183080
0.25N	5 Gallon	Cat. #187518
0.5N	1 Gallon	Cat. #183082
0.5N	5 Gallon	Cat. #187519
1.0N	1 Liter	Cat. #183086
1.0N	1 Gallon	Cat. #183088
1.0N	5 Gallon	Cat. #183156

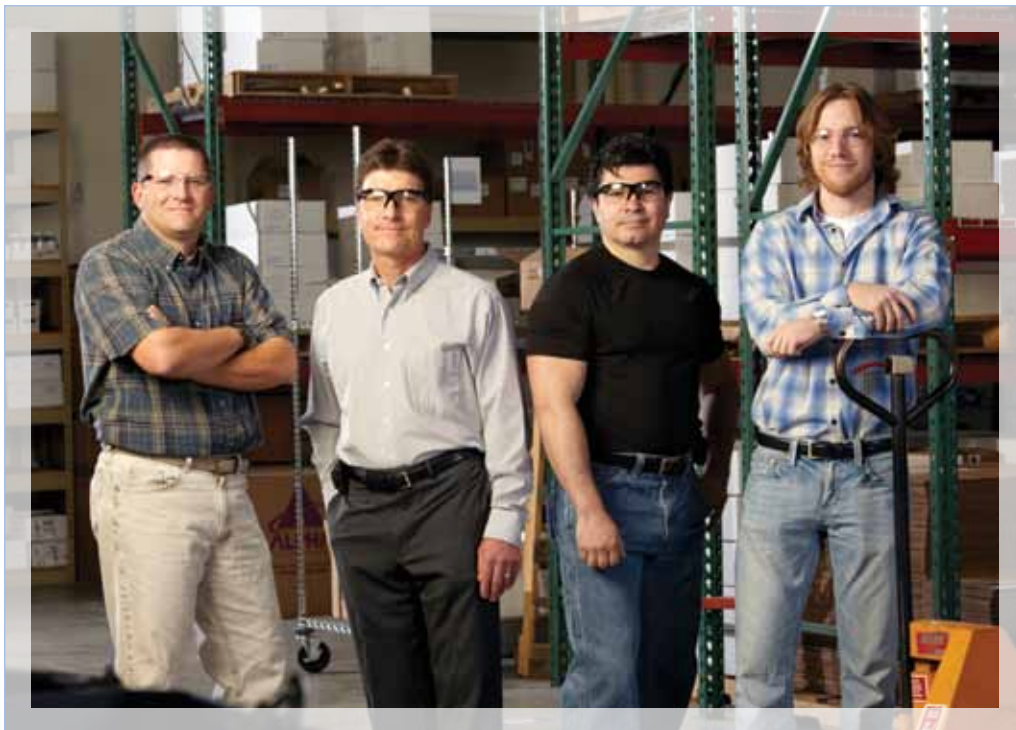


CONDUCTIVITY

ISO Guide 34 accredited since 2008, ERA is a certified reference materials producer and has been manufacturing conductivity reference standards for more than 30 years. ERA offers solutions and kits that support accurate, verifiable, and approved approaches to validating/verifying your conductivity sensors. Whether you are validating detection limits, determining accuracy and precision, or constructing a low-level linearity curve, ERA has the conductivity products and services to support your efforts.

CONDUCTIVITY

Pharmaceutical and medical grade waters used in product manufacturing must meet conductivity requirements as specified in USP <645>/ EP 2.2.38, where the off-line conductivity must be less than 1.3 $\mu\text{S}/\text{cm}$ at 25°C. Deionized water has a theoretical “purity” of 0.055 $\mu\text{S}/\text{cm}$ at 25°C, so the question is often asked why “ultrapure” water for injection (WFI) and purified water (PW) is considered acceptable in these applications when it displays conductivity levels 20 times the theoretical “purity” of water. The answer is simple; atmospheric carbon dioxide (CO_2) readily dissolves into ultrapure waters, “contaminating” the water with conductive ions and adding approximately 1.0 $\mu\text{S}/\text{cm}$ of conductivity to ultrapure water at 25°C. As such, appropriately accurate/stable CRMs in the range of interest (0.055-1 $\mu\text{S}/\text{cm}$) have not historically been available.



From left to right:

Dale Shallenberger, Procurement & Inventory Control; **Stanley Dunlavy**, Product Line Manager; **Mike Mendoza**, Materials Handler; **Vincent LaJustice**, Materials Handler



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CONDUCTIVITY

Validating the detection limits, accuracy and precision of a conductivity sensor in ultrapure water has been very elusive using traditional calibration solution schemes. Therefore, ERA is offering a three solution Validation Kit that will allow an accurate, verifiable, and approved approach to validating the sensor for your USP <645> methods. The kits come in single-use 125 mL volumes as well as multi-use 500 mL bottles. Each Validation Kit consists of three (3) conductivity calibration solutions.

Kits

Conductivity Validation Kit – individual use

Four bottles: (1) 25 $\mu\text{S}/\text{cm}$ in Water, (1) 100 $\mu\text{S}/\text{cm}$ in Water, (1) 146.93 $\mu\text{S}/\text{cm}$ in Water (Solution D) and (1) Reagent Blank for use with Solution D. 125 mL Cat. #02850

Conductivity Validation Kit – multiple use

Four bottles: (1) 25 $\mu\text{S}/\text{cm}$ in Water, (1) 100 $\mu\text{S}/\text{cm}$ in Water, (1) 146.93 $\mu\text{S}/\text{cm}$ in Water (Solution D) and (1) Reagent Blank for use with Solution D. 500 mL Cat. #02900

Solution 25 Test Kit

(1) 25 $\mu\text{S}/\text{cm}$ in Water and 5 pre-cleaned 125 mL containers. 500 mL Cat. #01100

Solution 25 Test Kit

(1) 25 $\mu\text{S}/\text{cm}$ in Water and 10 pre-cleaned 125 mL containers. 1 Liter Cat. #01000

Solution 100 Test Kit

100 $\mu\text{S}/\text{cm}$ in Water and 5 pre-cleaned 125 mL containers. 500 mL Cat. #02300

Solution 100 Test Kit

100 $\mu\text{S}/\text{cm}$ in Water and 10 pre-cleaned 125 mL containers. 1 Liter Cat. #02200

Low-Level Conductivity

Our low-level conductivity is an excellent verification solution once you have calibrated your system using our ASTM Solution D. This standard can verify that the accuracy of your cell meets the USP requirements and will positively demonstrate and document that you are using non-compensated conductivity measurements as required.

5 $\mu\text{S}/\text{cm}$	60mL	Cat. #01301
5 $\mu\text{S}/\text{cm}$	125mL	Cat. #01302
5 $\mu\text{S}/\text{cm}$	500mL	Cat. #01303
10 $\mu\text{S}/\text{cm}$	60mL	Cat. #01306
10 $\mu\text{S}/\text{cm}$	125mL	Cat. #01307
10 $\mu\text{S}/\text{cm}$	500mL	Cat. #01308
25 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01400
25 $\mu\text{S}/\text{cm}$	250 mL	Cat. #01350
25 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01300
25 $\mu\text{S}/\text{cm}$	1 Liter	Cat. #01200

Mid-Level Conductivity

Manufactured using NIST traceable materials and certified, this KCl solution is an excellent calibration or calibration verification solution. This solution is certified by analysis and does not require the use of a reference blank for accurate calibration or validation.

100 $\mu\text{S}/\text{cm}$	125 mL	Cat. #02600
100 $\mu\text{S}/\text{cm}$	250 mL	Cat. #02250
100 $\mu\text{S}/\text{cm}$	500 mL	Cat. #02500
100 $\mu\text{S}/\text{cm}$	1 Liter	Cat. #02400

ASTM STANDARD SOLUTIONS

ASTM solutions offer superior accuracy at mid- to high-levels for conductivity sensor validation and verification. These solutions are highly stable and widely accepted reference sources even in ultra-pure water applications. Manufactured according to the ASTM 1125 Test Method for conductivity and conductivity calibration.

Mid-Level Conductivity Standards (cont.)

ASTM Solution D is the lowest level solution that can be made following a NIST protocol for conductivity solution preparations. This standard makes an excellent calibration or verification solution together with our Solution 25.

Solution D at 146.93 $\mu\text{S}/\text{cm}$ Includes Reference Blank.	1 Liter	Cat. #01700
Solution D at 146.93 $\mu\text{S}/\text{cm}$ Includes Reference Blank.	500 mL	Cat. #01800
Solution D at 146.93 $\mu\text{S}/\text{cm}$ Includes Reference Blank.	125 mL	Cat. #01900
Solution D Test Kit		
Includes Solution D, Reference Blank, and 20 pre-cleaned 125 mL containers.	1 Liter	Cat. #01500
Solution D Test Kit		
Includes Solution D, Reference Blank, and 10 pre-cleaned 125 mL containers.	500 mL	Cat. #01600



From left to right:
Amy Whittier, Global Director of Marketing; **Curtis Wood**, Senior Market Manager, Environmental; **Barbara Perzanowski**, Marketing Communications Specialist

High-level Conductivity

ASTM solutions C and D are prepared prescriptively from KCl and offer superior accuracy at mid- to high-levels for conductivity sensor validation and verification.

Solution C at 1408.8 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01610
Solution C at 1408.8 $\mu\text{S}/\text{cm}$	1000 mL	Cat. #01620
1,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01410
1,000 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01420
1,000 $\mu\text{S}/\text{cm}$	1000 mL	Cat. #01430
10,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01630
10,000 $\mu\text{S}/\text{cm}$	1000 mL	Cat. #01640
100,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01650
100,000 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01655
100,000 $\mu\text{S}/\text{cm}$	1000 mL	Cat. #01660
200,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01661
200,000 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01662
300,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01663
300,000 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01664
400,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01665
400,000 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01666
500,000 $\mu\text{S}/\text{cm}$	125 mL	Cat. #01667
500,000 $\mu\text{S}/\text{cm}$	500 mL	Cat. #01668

Quality Focus

Calibration standards, stock solutions, matrix spikes; if a reference standard can be made, ERA will be happy to prepare it for you and supply a comprehensive Certificate of Analysis with it. We have experience with:

- Chemical, microbiological and radiochemical analytes
- Calibration/Linearity/LOD kits for GC, ICP, LC, MS, TOC, conductivity
- Ultra trace to percent levels
- Swab recovery studies
- Visible residue limit determination
- Matrix flexibility: water, brine, food, soil, biological tissues, plant materials, etc.
- Project/site-specific and client-supplied matrices
- One standard or hundreds of standards
- Managed methodology studies

Are custom standards expensive?

While the cost of custom standards certainly depends on the complexity of your requirements, the costs for most simple standards is very reasonable. The final cost is dependent on many factors, including the materials used, time required, complexity of the standards and extent of analytical validation required. In every case, you will receive a fixed price quotation based upon your project-specific requirements and you can count on ERA to deliver what you need, when you need it. Now that's versatility.



From left to right:

John Laferty, Life Sciences & Customs Product Line Manager; **Chad Lane**, Chemist; **Tony Ciacco**, Chemist



WWW.ERAQC.COM



800-372-0122 (OR) 303-431-8454



INFO@ERAQC.COM

TOC Swabs Recovery studies Total Organic Carbon Critical Inspection Finish Glass Pharmaceutical manufacturing Rubber HPLC Trust
C of A
FDA Certified Reference Materials Residue Plastic Metal Compliance Independent Risk Mitigation Specialty System Suitability Coupons Certificate of Analysis Service Surfaces Global Waters
Acceptability

CLEANING VALIDATION

ERA is your source for coupons, swabs, templates and vials – everything you need for recovery studies and routine verification sampling. We have an extensive inventory of products available to ship the same day, so if you are up against the clock with your cleaning study, call ERA today and you can usually have what you need by tomorrow.

CLEANING VALIDATION

ERA is the premier manufacturer of specialty cleaning validation products—coupons, certified clean sample vials and swabs for swab recovery studies as well as kits that can be customized to suit your laboratory, analyst and validation needs.

Sampling Kit with Vial and Swab

Vial and Swab Sampling Kit – Small

25 certified clean swabs
12 certified clean vials

Cat.
#CV10000

Vial and Swab Sampling Kit – Large

160 certified clean swabs
80 certified clean vials

Cat.
#CV10005

Swabs

Large polyester swabs with snap-off head for ultra-low interference levels.

TOC use Similar to TX714K (< 50.0 ppb TOC)	100 swabs 50/bag 2 bags/case	Cat#30031
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HPLC use Similar to TX715 (Abs254: 0.1 au max.)	100 swabs 50/bag 2 bags/case	Cat. #30030
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Swabbing Templates

Pre-cleaned Teflon® square swabbing templates are a simple way to ensure accuracy and precision in your cleaning validation sampling. Each pack comes with a C of A for residual HPLC and TOC levels. Can be custom made to your needs. Stainless steel available upon request. Call ERA for pricing and custom sizing.

16 cm ²	25/pack	Cat#30028
25 cm ²	25/pack	Cat#30029
100 cm ²	25/pack	Cat#30032

Custom Coupons

ERA can accommodate your custom requests for coupons of just about any size, shape or material. Please use the general catalog numbers below and provide the information at bottom to our customer service representatives.

Polymer	Cat. #30024
Metal	Cat. #30025
Glass	Cat. #30027

Call ERA at 800-372-0122 or 303-431-8454 for a quote on your custom coupon needs. Please have the following information available and the quantity needed:

Material Metal, plastic, rubber or glass type (stainless steel, polyethylene, etc.).

Grade Specific grade of material; like 316 stainless, HDPE or borosilicate glass.

Finish Arguably the most important factor. The finish usually refers to the surface roughness and can be stated in terms of “grit” or “Ra” values for metals. It is most often measured using a profilometer.

Coating Most materials can be coated to offer desirable surface properties.

Etching Most materials can be etched with serial numbers, swabbing areas or other information.

Dimensions Size and shape of the coupon.

Quantity The quantity of coupons needed.

[W]

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[T]

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[E]

INFO@ERAQC.COM



CONSUMABLES

Ever wonder what the USP means by: “Use glassware and sample containers that have been scrupulously cleaned of organic residues?”¹

Just like the USP, we here at ERA demand scrupulously cleaned vials for our TOC standards. All of our vials, whether glass or polymer, represent the most consistently clean sample vials available anywhere. They are the perfect vial for your purified water (PW) or water for injection (WFI) sample analysis.

All ERA vials and bottles, whether glass or polymer, represent the most consistently clean sample containers available anywhere.

¹ United States Pharmacopeia Monographs, Chapter <661> - Containers.

Bottles

60 mL HDPE for ANATEL® A643

Natural	1/pack	Cat. #25030
Natural	25/pack	Cat. #25031
Amber	1/pack	Cat. #25033
Amber	25/pack	Cat. #25034

Filters

Micron in-line Stainless Filter	Each	Cat. #25035
Fan filter for Sievers 800	Each	Cat. #25040

Lamps

Replacement UV Lamps for ANATEL and Sievers models.

ANATEL /HUA A643	Each	Cat. #20036A
ANATEL/HUA PAT700	Each	Cat. #20037
Sievers 400	Each	Cat. #20040
Sievers 500	Each	Cat. #20045

Vials

Glass

40 mL Ultra-low TOC Vials	80/cs	Cat. #25025
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Plastic

30 mL Poly Vial for Sievers 400	1/pack	Cat. #25015
125 mL Pre-cleaned HDPE Bottle for measuring calibration solutions	1/pack	Cat. #02000

Tubing

Replacement pump tubing for Sievers models.

Sievers 400	Each	Cat. #25055
Sievers 800	Each	Cat. #20050
Sievers 900	Each	Cat. #20060

Reagent Cartridges for Sievers

Phosphoric Acid Reagent Cartridge for Sievers 800/900	150 mL	Cat. #21000
Phosphoric Acid Reagent Cartridge for Sievers 800/900	300 mL	Cat. #21001
Persulfate Oxidizer Reagent Cartridge for Sievers 800/900	150 mL	Cat. #21005
Persulfate Oxidizer Reagent Cartridge for Sievers 800/900	300 mL	Cat. #21006

Reagents

Phosphoric Acid Reagent	1 Liter	Cat. #21016
Phosphoric Acid Reagent	2 Liter	Cat. #21018
Persulfate Oxidizer Reagent	1 Liter	Cat. #21017
Persulfate Oxidizer Reagent	2 Liter	Cat. #21019



From left to right:

Christian Milek,
Inorganic Chemist

Tom Widera,
Inorganics Product
Line Manager

Laura Stone,
Inorganic Chemist

Amanda Bruggeman,
Inorganic Chemist

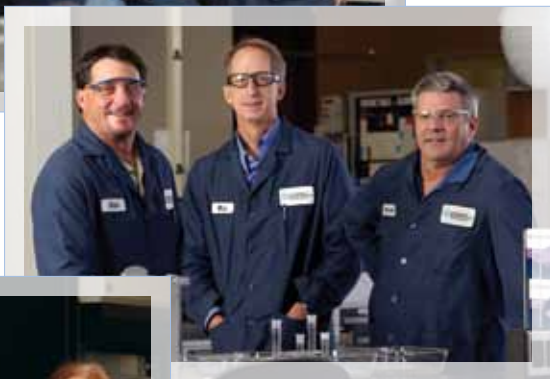


From left to right:

Matt Graves,
Organic Chemist

Mike Blades,
Organics Product
Line Manager

Marshall Tilbury,
Organic Chemist



From left to right:

Amber Bolger,
Production Technician

Cherie Sanchez,
Production Technician

Catherine Fuentes
Production Technician



From left to right:

Eric Leonard,
Chemistry Technician

Brian Miller,
Radiochemist

Eric Schmidt,
Production Coordinator

Stephen Sanchez,
Production Technician

Kemi Alexander,
Chemistry Technician



HOW TO ORDER

Customers in the U.S. may order ERA's Life Sciences products online at www.eraqc.com or by calling ERA at 800-372-0122 ■ 303-431-8454.

If you live outside the U.S., please contact an authorized ERA distributor to order ERA's Life Sciences products. To find the name of a distributor in your area or country, please visit www.eraqc.com. Click on the Global Sales Partner link in the About ERA pull down menu. You may also request distributor information by sending an email to info@eraqc.com.



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TERMS AND CONDITIONS

Credit Cards

ERA accepts MasterCard, VISA, American Express and Discover.



Confirmation

All orders are confirmed to the purchasing contact as long as fax or email information is provided. Please review the confirmation immediately to ensure the accuracy of your order.

Pricing

Prices are F.O.B. Golden, CO and or Manchester, U.K. and are subject to change without notice. Subscription prices are firm for the duration of the subscription.

Terms

Terms are net 30 days. Freight charges are prepaid and added to the invoice. A \$10 charge is added to each invoice per shipment to cover regulated materials packaging and handling.

Fast Two-day Shipping

Due to the semi-perishable nature of the standards we manufacture, we require the product be shipped for overnight delivery. Please follow instructions and refrigerate immediately upon receipt.

Safety

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of ERA products rests entirely with the purchaser and user. If you need a Material Safety Data Sheet (MSDS) for any ERA product, please visit www.eraqc.com/resources or call ERA:

U.S. facility: 800-372-0122 ■ 303-431-8454

U.K. facility: +44 (0) 161 946 2777

Return/Replacement Policy

Please check all orders immediately upon receipt for accuracy and to ensure that there is no damage. ERA will immediately correct any problems that are reported within five working days of receipt.

NO OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED, IS MADE WITH RESPECT TO THE PRODUCTS AND/OR SERVICES. ERA EXPRESSLY EXCLUDES THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE. ERA SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR ANY OTHER INDIRECT DAMAGES RESULTING FROM ECONOMIC LOSS.



A Waters Company

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