

Buffers and Reagents

Your essential resource for Agilent ULTRA chemical standards





Table of contents

| | |
|--|-----------|
| Introduction | 3 |
| About Agilent standards | 3 |
| Products | 3 |
| Markets | 3 |
| Custom products | 3 |
| Quality control laboratory | 4 |
| Quality control validation levels | 4 |
| Triple certification | 5 |
| Level 2 reference material Certificate of Analysis | 6 |
| GHS compliance | 7 |
| | |
| Certified pH buffers | 8 |
| Certified conductivity solutions | 9 |
| Certified water | 10 |
| Certified titrants and test solutions | 10 |
| | |
| Agilent Service and Support | 11 |

About Agilent standards

Agilent is a global leader in chromatography and spectroscopy, as well as an expert in chemical standards manufacturing. Agilent offers certified reference materials, QC standards, reagents, and buffers to complement our extensive line of instruments, columns, sample preparation products, consumables, and services. Our portfolio provides laboratories with full workflow solutions for efficient, accurate results.

Agilent has an extensive list of chemical standards, matched by expertise in designing and formulating custom standards to exacting specifications. Agilent products are available through our global distribution channels, and with our logistics capabilities we offer rapid turnaround time on all orders.

With over 40 years of technical expertise in measurement science, we provide innovative, quality products to address the entire analytical chemistry workflow for laboratories around the world.

Products

- Certified reference materials (CRM)
- Reference materials (RM)
- Calibration standards
- IQ/OQ/PQ standards
- Linearity standards
- Quality check samples
- Buffers and reagents
- Wash solution and diluents

Markets

Environmental

- Petrochemicals
- PCB/PBB
- Halocarbons
- VOC/Semi-VOC
- Pesticides
- Dioxins and furans

Food and Beverages

- Allergens
- Amino and nitroaromatics
- Pharma and vet drugs
- PAHs
- Lipids
- Food authenticity
- Phenols
- Dyes

Life Science

- Pharmaceutical
- Biopharma
- Academic and research
- University
- Governmental

Industrial and Mining

Petrochemical

- Matrix oils
- Metals in biodiesel
- Organometallic

Elemental Analysis

- Single element
- Multi-element

Custom products

Do you need a custom defined reference material or other chemical solution unique to your laboratory or testing procedure? If the product you require is not available as an Agilent product, we can prepare it for you on a custom basis. Custom reference materials are a fast, economical way to meet your specific laboratory needs.

Agilent maintains an expansive compatibility database, integrating 40 years of manufacturing and quality control data to create stable and reliable custom product formulations. Choose from any of our three quality control validation levels (see Page 4).

Visit www.agilent.com/chem/standards to request a quote.

Quality control laboratory

Agilent operates an ISO 17025 accredited quality control laboratory and is accredited to ISO Guide 34 as a reference material producer for the manufacture of certified reference materials (CRM).

Rely on the expertise of our applications development group for:

- Method development
- Pre- and postfill analysis
- Stability testing and protocols
- Homogeneity testing



Quality control validation levels

Chemical standards manufactured by Agilent are supplied with a lot-specific certificate of analysis (C of A) that reflects the associated quality control validation level. Certificates of analysis can ship with the product and are available online. All Agilent products, unless otherwise stated, are Level II - ISO Guide 34 reference materials.

| | | Reported Value | Reported Uncertainty | Former Name | Solutions | Neats | Lead Time (Customs) |
|-----------|-----------------|-------------------|----------------------|-----------------|-----------|-------|------------------------|
| Level I | ISO Guide 34 RM | True (calculated) | U_{char} | Gravimetric | Y | Y | 5 business days |
| Level II | ISO Guide 34 RM | True (analytical) | U_{char} | Full validation | Y | Y | 7 to 10 business days |
| Level III | ISO Guide 34 | Certified | U_{exp} | ISO Guide 34 | Y | | 15 to 20 business days |

Level I solution: A reference material (RM) prepared gravimetrically in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The neat materials used for the product are verified by an Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. For each analyte, the true value, with its uncertainty value calculated at 95% confidence level, is reported.

Level I neat: RM prepared in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The true value (% purity) is reported.

Level II solution: RM prepared gravimetrically in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The neat materials used for the product are verified by an Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. The analyte concentrations are verified by an Agilent ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at 95% confidence level, is reported.

Level II neat: RM prepared in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The materials used for this product are verified by the Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. The true value (% purity), with its uncertainty value calculated at 95% confidence level, is reported.

Level III solution: RM prepared gravimetrically in accordance with ISO Guide 34 and under the Agilent ISO 9001 registered quality system. The neat materials used for this product are verified by the Agilent ISO 17025 laboratory and under the Agilent ISO Guide 34 accreditation. The analyte concentrations are verified by an Agilent ISO 17025 accredited laboratory. For each analyte, the certified value is reported with its uncertainty value calculated as the expanded uncertainty, in accordance with ISO Guide 35.

Triple certification

Agilent is committed to product integrity by offering customers the assurance of triple certification to ISO standards.

Agilent operates under an ISO 9001 registered quality management system, where an accrediting body (TUV) attests to the quality of our methods, procedures, testing, production, and record keeping.

Our quality control laboratory is accredited to ISO 17025 (ANAB) for technical competence to perform testing of organic and inorganic materials and certified reference materials, as defined in our scope, accessible online at www.agilent.com/chem/17025


Agilent is further accredited to ISO Guide 34 (ANAB) for technical competence as a reference material producer of certified reference materials. This requires Agilent to identify and document the major components of uncertainty including homogeneity, short- and long-term stability, and uncertainty due to analytical characterization and manufacturing.

The most current Agilent certifications are accessible at www.agilent.com/quality

Tips and tools

To view our entire portfolio of over 7,000 standards, all manufactured under ISO 17025 Guide 34, visit www.agilent.com/chem/store

Level 2 reference material Certificate of Analysis

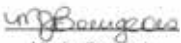
| | | | |
|---|------------------------------------|---|-------------|
|  | Agilent | Certificate of Analysis ISO Guide 34 | |
| C4-C24 Even Carbon Saturated FAME Mix | | | |
| Product Number: 5191-4278 | | Page: | 1 of 1 |
| Lot Number: CR-5364 | Lot Issue Date: 17-Nov-2017 | Expiration Date: | 31-Dec-2019 |


This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

| Analyte | CAS# | Analyte Lot | True Value |
|---------------------------------|-------------|-------------|----------------|
| methyl butanoate | 000623-42-7 | RM04575 | 1005 ± 5 µg/mL |
| methyl hexanoate | 000106-70-7 | NT01630 | 1005 ± 5 µg/mL |
| methyl octanoate | 000111-11-5 | NT01094 | 1003 ± 5 µg/mL |
| methyl decanoate | 000110-42-9 | NT00187 | 1004 ± 5 µg/mL |
| methyl laurate | 000111-82-0 | NT01095 | 1003 ± 5 µg/mL |
| methyl tetradecanoate | 000124-10-7 | NT00188 | 1003 ± 5 µg/mL |
| methyl palmitate | 000112-39-0 | RM07128 | 1001 ± 5 µg/mL |
| methyl octadecanoate | 000112-61-8 | RM12285 | 1002 ± 5 µg/mL |
| methyl arachidate | 001120-28-1 | RM11588 | 1003 ± 5 µg/mL |
| methyl docosanoate | 000929-77-1 | NT01096 | 1004 ± 5 µg/mL |
| tetracosanoic acid methyl ester | 002442-49-1 | NT01097 | 1004 ± 5 µg/mL |


Matrix: hexane
Storage: Store Refrigerated (2° - 8°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCCL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.


 Monica Bourgeois
 QMS Representative


ISO Guide 34 Cert No.
AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026
registered ISO 9001 Quality Management System


ISO17025 Cert No.
AT-1937

www.agilent.com/quality

An example of a Certificate of Analysis for an Agilent reference material.

GHS compliance

Agilent is a certified GHS author for SDS and GHS compliant labeling. Chemical products manufactured and distributed by Agilent are compliant with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Safety Data Sheets (SDS) and labels are prepared in accordance with regulations and in the following languages:

European CLP Regulation

Regulation 1272/2008

- Chinese (standard Mandarin)
- Czech
- Danish
- Dutch
- English
- Estonian
- Finnish
- French
- German
- Italian
- Japanese
- Korean
- Polish
- Portuguese
- Romanian
- Russian
- Spanish
- Swedish

USA GHS-OSHA Regulation

Hazcom 2012

- English
- Spanish
- French

Chinese GHS Regulation

*GB/T 17519-2013 and
GB/T 16483-2008*

- Chinese (standard Mandarin)
- English

Additional languages are available upon request.

As regulations are updated and expanded, Agilent will maintain up-to-date records online at www.agilent.com

Tips and tools

To view our entire portfolio of over 7,000 standards, all manufactured under ISO 17025 Guide 34, visit www.agilent.com/chem/store

Buffers and Reagents

The reliability of your wet chemistry analytical data is directly dependent upon the quality of your buffers and reagents. Agilent offers a complete selection of certified conductivity solutions manufactured to provide reliable solutions for virtually any electrochemical analysis. Agilent offers the pH buffers most widely used in laboratories today. These popular buffers are available as color-coded formulations for easy identification by laboratory personnel and the labels contain expiration dates and lot numbers. Agilent pH buffers are carefully manufactured to provide chemists with a means of keeping pH at a nearly constant value in a wide variety of chemical applications. Conductivity solutions and pH buffers are NIST SRM traceable.

Certified Buffers

| Product | Description | ISO Guide 35 | Unit | Part No. |
|----------|--|--------------|---------|--------------|
| pH 1.68 | pH buffer 1.68 reference standard | ✓ | 500 mL | IBF-168 |
| pH 4.01 | pH buffer 4.01 reference standard (color coded red) | ✓ | 500 mL | IBF-040 |
| | | | 1 L | IBF-040-L |
| pH 4.00 | Acetate buffer | | 1 L | IBF-040A-L |
| | | | 4 L | IBF-040A-4L |
| | | | 6 x 1 L | IBF-040A-CS |
| | | | 20 L | IBF-040A-20L |
| pH 7.00 | pH buffer 7.00 reference standard (color coded yellow) | ✓ | 500 mL | IBF-070 |
| | | | 1 L | IBF-070-L |
| pH 7.416 | pH buffer reference standard | ✓ | 500 mL | IBF-074 |
| | | | 1 L | IBF-074-L |
| pH 8.00 | pH buffer reference standard (25 °C) | | 20 L | IBF-080-20-L |
| pH 9.21 | pH buffer reference standard | ✓ | 500 mL | IBF-092 |
| | | | 1 L | IBF-092-L |
| pH 10.01 | pH buffer 10.01 reference standard (color coded blue) | ✓ | 500 mL | IBF-100 |
| | | | 1 L | IBF-100-L |
| pH 12.45 | pH buffer 12.45 reference standard | ✓ | 500 mL | IBF-1245 |

Order from Agilent

Visit us online at www.agilent.com at any time and search for the products you need. If we don't have an item listed, you can request a custom quote online.

Alternatively, call our experienced customer service representatives for the information you need about Agilent products and your order. Visit www.agilent.com/chem/contactus to find out how.

Certified Conductivity Solutions

| Product | Description | Unit | Part No. |
|----------------------------|---|--------|-----------|
| Conductivity, TDS as NaCl | 50 µmhos/cm at 25 °C, 23.6 ppm | 500 mL | IBF-500 |
| | | 1 L | IBF-500-L |
| Conductivity, TDS as NaCl | 100 µmhos/cm at 25 °C, 47.2 ppm | 500 mL | IBF-501 |
| | | 1 L | IBF-501-L |
| Conductivity, TDS as NaCl | 200 µmhos/cm at 25 °C, 95.0 ppm | 500 mL | IBF-502 |
| | | 1 L | IBF-502-L |
| Conductivity, TDS as NaCl | 500 µmhos/cm at 25 °C, 240 ppm | 500 mL | IBF-505 |
| | | 1 L | IBF-505-L |
| Conductivity, TDS as NaCl | 1,000 µmhos/cm at 25 °C, 495 ppm | 500 mL | IBF-510 |
| | | 1 L | IBF-510-L |
| Conductivity, TDS as NaCl | 2,000 µmhos/cm at 25 °C, 1,000 ppm | 500 mL | IBF-520 |
| | | 1 L | IBF-520-L |
| Conductivity, TDS as NaCl | 5,000 µmhos/cm at 25 °C, 2,620 ppm | 500 mL | IBF-550 |
| | | 1 L | IBF-550-L |
| Conductivity, TDS as NaCl | 10,000 µmhos/cm at 25 °C, 5,400 ppm | 500 mL | IBF-600 |
| | | 1 L | IBF-600-L |
| Conductivity standard, KCl | 147 µmhos/cm at 25 °C, 0.001 mol/L KCl | 500 mL | IBF-560 |
| | | 1 L | IBF-560-L |
| Conductivity standard, KCl | 1,413 µmhos/cm at 25 °C, 0.01 mol/L KCl | 500 mL | IBF-570 |
| | | 1 L | IBF-570-L |
| Conductivity standard, KCl | 12,880 µmhos/cm at 25 °C, 0.1 mol/L KCl | 500 mL | IBF-580 |
| | | 1 L | IBF-580-L |



Buffers and Reagents

Certified Pure Water

| Product | Description | Unit | Part No. |
|---------------|--------------|--------|-----------|
| Low TOC water | < 50 ppb TOC | 500 mL | IQC-100-5 |
| | | 1 L | IQC-100-L |

Certified Titrants and Test Solutions

| Product | Description | Unit | Part No. |
|------------------|--|--------|--------------|
| Boric acid | 2 % (w/v), without indicator | 500 mL | INR-0129S |
| | | 1 L | INR-0129S-L |
| Boric acid | 2 % (w/v), with methyl red-methylene, pH indicator | 500 mL | INR-0129SX |
| | | 1 L | INR-0129SX-L |
| Calcium chloride | 2.75 % (w/v), aqueous solution, APHA for BOD | 500 mL | INR-2017S |
| | | 1 L | INR-2017S-L |
| Disodium EDTA | 0.100 M, titrant, standardized | 500 mL | ITR-011 |
| | | 1 L | ITR-011-L |
| Sodium hydroxide | 6.0 N, standardized | 500 mL | ITR-021 |
| | | 1 L | ITR-021-L |
| Sodium hydroxide | 1.00 N, standardized, N/1 | 500 mL | ITR-022 |
| | | 1 L | ITR-022-L |
| Sodium hydroxide | 0.100 N, standardized, N/10 | 500 mL | ITR-024 |
| | | 1 L | ITR-024-L |

Technical support at work for you

Have a hardware, software, application, instrument repair, or troubleshooting question? Agilent's technical experts are available to answer your questions. With years of laboratory experience, our technical support specialists can provide in-depth knowledge and experience.

For questions about supplies found in this catalog, contact your local Agilent office or authorized Agilent distributor. Or visit www.agilent.com/chem/techsupport



Agilent CrossLab services

Maximize uptime with end-to-end support

Trust Agilent CrossLab service experts to deliver valuable insights and keep your instruments running. Our industry-leading services include Technology Refresh, application consulting, repairs, preventive maintenance, and more.

Ask us how we can support your laboratory today.

www.agilent.com/crosslab

Need more information?

Visit www.agilent.com/chem/contactus to:

- Locate your nearest Agilent office or distributor for expert technical support.
- Get fast sales and product assistance by phone. Simply use the scroll-down menu to select your country.
- Receive email assistance using our convenient online forms.

Contact us:

www.agilent.com/chem/contactus

Buy online:

www.agilent.com/chem/store

Get social with Agilent:

www.agilent.com/chem/social

Explore our full range of catalogs:

www.agilent.com/chem/catalog

This information is subject to change without notice.

© Agilent Technologies, Inc. 2019
Published in the USA, March 1, 2019
5994-0616EN

