

News on Standards

2015 Volume 1



Whatever your specialisation – Pharma, Clinical, Food, Environmental, Research – this new bulletin is designed to bring you all the latest developments in the Sigma-Aldrich® Analytical Standards and Certified Reference Material (CRM) portfolio. This vast range of products - currently over 16,000 - includes products for environmental, petrochemical, pharmaceutical, clinical and diagnostic, toxicology and forensics, food and beverage, GMO standards, cosmetic, veterinary and much more.

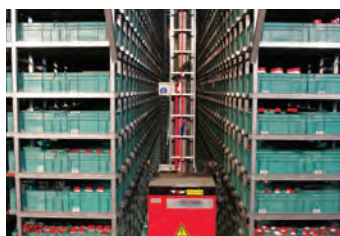
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- Cannabinoids and Cathinones (*Clinical/Forensic Tox*)
- Food Authenticity (*Food testing*)
- Flavours & Fragrances (*Food testing*)
- Mycotoxin CRMs (*Food testing*)
- Organic CRMs certified using qNMR (*All applications*)
- Petrochemical Physical Property and Viscosity CRMs (*Petrochem, food*)
- Priority Substances (*Environmental*)
- Protein Aqueous Size Exclusion Chromatography (SEC) Mix (*Biotherapeutics, Food proteins*)
- Secondary Pharma CRMs (*Pharma, but also Water testing, Cosmetics, Food and more*)
- Search tool for Analytical Methods for standards (*All applications*)

A Partnership in Quality

All Sigma-Aldrich standards manufacturing sites are double accredited to ISO/IEC 17025 and ISO Guide 34, which is the highest achievable quality level for reference material producers, often referred to as the “gold standard” in reference materials, to provide an ever expanding range of both analytical standards and CRMs.

R&D facilities in all the standards manufacturing sites (Buchs in Switzerland and Bellefonte, Laramie and Round Rock in the USA) have a continual program of new product development. As new products are introduced in all categories, they can be identified by a **NEW** sign on the product listing pages. Add to this, the well-known rapid delivery



Fully automated warehousing in Schnelldorf, Germany

from our warehouses and easy, on-line ordering and Sigma-Aldrich represents a true partnership to support analysis in all fields.

TraceCERT® Organic CRMs

Especially for ISO/IEC 17025 accredited testing labs there is a need for a broad spectrum of organics as CRMs, but many analytes do not have the required internationally accepted reference standard available. While most analytical techniques require the comparison to a standard of the same chemical structure, quantitative NMR (qNMR) provides quantitative comparison to different organic molecules.

At our Fluka® manufacturing site in Buchs, Switzerland, we have implemented the use of quantitative NMR (qNMR) for the certification of the Fluka TraceCERT range of organic CRMs. This is a very efficient and straight forward technique to quantify organic compounds with traceability to SI/NIST SRMs.

This comprehensive portfolio covers a wide range within the categories of amino acids, pesticides, natural products, phthalates, PAHs and many more. There is an additional range of Supelco TraceCERT organic CRM solutions that are characterised using traditional chromatographic techniques.

Advantages of Organic TraceCERT CRMs

- Manufactured under ISO/IEC 17025 and ISO Guide 34 accreditation
- Traceable to NIST SRM
- Superior level of accuracy, calculated uncertainties and lot-specific values

The range is continually being increased and an up-to date product list of the organic TraceCERT products can be found on our website at

sigma-aldrich.com/organiccrm

If you are interested to learn more about the technique of quantitative NMR please refer to several articles published in our Analytix magazine (e.g. articles in Analytix 2/2010, 3/2010, 2/2013 or 1/2015 sigma-aldrich.com/analytix)



Cerilliant® – New Brochures

At Cerilliant, CRMs are manufactured and tested to the highest possible industry standard for a wide variety of applications in clinical diagnostics and toxicology.

Now available – two new brochures that include not only details of the range of cannabinoids and synthetic cathinones available, but also a recommended analytical method for them, from sample preparation through to detection.



These brochures are available on request by emailing CerilliantEU@sial.com

For the full range of Cerilliant CRMs, visit sigma-aldrich.com/cerilliant

Sigma-Aldrich Secondary Pharmaceutical Reference Standards

The Fluka Secondary Pharma standards range covers an extremely wide range of pharma CRM products, APIs, excipients and impurities, selected for use in pharma QC, but also used extensively in, food, cosmetic and environmental waste water applications.

Certified Fluka pharmaceutical secondary standards provide pharma laboratories and manufacturers with a convenient and cost-effective alternative to in-house preparation of working standards or to pharmacopeia primary standards. These secondary standards have multi-traceability to the USP, EP and BP primary standards and are manufactured according to ISO/IEC 17025 and ISO Guide 34. A comprehensive Certificate of Analysis is provided but also updated as Pharmacopeial lots change, so that an up to date copy can be downloaded prior to use - an example can be viewed at the web link below.

We have a major program to introduce several hundred new Secondary Pharma CRM products during 2015. Look for the **NEW** sign in the web product catalogue



sigma-aldrich.com/pharmastandards

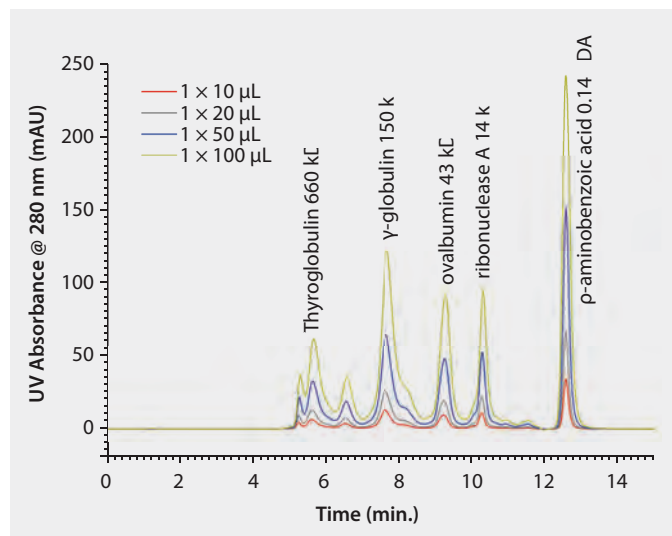
sigma-aldrich.com/standards

Techniques: Aqueous SEC of Proteins

A protein standard mix especially developed for the molecular mass determination of proteins or for system suitability tests is available for HPLC/SEC techniques, particularly those utilizing Tosoh SW and SuperSW columns. The Sigma-Aldrich Protein Standard Mix for SEC offers full coverage of the molecular weight range from 15 kDa to 600 kDa, qualifying it for the molecular mass determination of most proteins. To avoid limited shelf life and time consuming preparation, this standard mix comes in 2 mL tubes that contain lyophilized protein powder and all the necessary buffer ions. Simply add water and inject for the calibration.

SEC separates molecules according to their hydrodynamic size, which is also dependent on the hydration shell thickness, the degree of which in a given solvent is determined by molecular characteristics, such as the polarity. Often, polyethylene glycols are used as standards, because of their monodispersity and stability. Unfortunately, for protein analysis, polyethylene glycols have limited usefulness due to their much thicker hydration shell. For the molecular mass determination of proteins in SEC, proteins are more appropriate as a calibration standard.

Protein standard mix consists of 4 proteins – thyroglobulin, gamma-globulins, albumin, ribonuclease A and a marker (pABA) and is supplied as a single vial or as a set of 6 x 2 mL vials, ready to hydrate.



Protein Standard Mix 15 (15 – 600 kDa) on TSKgel SuperSW mAb HR 7.8 mm in 200 mM sodium phosphate buffer, pH 6.7 and 200 mM sodium sulfate, 1 mL/min. UV @280 nm.

Products

Cat. No.	Brand	Description	Package Size
69385	Fluka®	Protein Standard Mix 15 – 600 kDa 30 mg	30 mg
822854	Supelco®	TSKgel SuperSW mAb HR, 4 µm (7.8 x 300 mm)	1EA

For more information on SEC columns, visit sigma-aldrich.com/tosoh

Read the full article here: sigma-aldrich.com/analytix2014-1

Flavor and Fragrance Standards

This analytical standard and CRM range from Sigma-Aldrich has broadened to include a wider range of allergenic fragrance compounds, flavour enhancers and EU banned substances.

The new Flavor and Fragrance Standards brochure is now available which includes a comprehensive alphabetical listing of a portfolio of more than 600 standards and CRMs. To download the brochure, visit sigma-aldrich.com/flavor



Ampoule Opener

Using Standards in Ampoules?

This new tool is an easy-to-use multi-use ampoule opener that avoids the possibility of injury sometimes seen when ampoules are opened by hand. When the neck of an ampoule is snapped by hand, the very sharp edge on the ampoule and the ampoule lid can cause serious cuts.



This specially designed tool helps to make this process safe.

Products

Cat. No.	Description
94791-1EA	Regular, for 1-2 mL, 5-10 mL, 10-15 mL ampoules
43917-1EA	Large, for 5-10 mL, 10-15 mL, 20-25 mL ampoules (use this one for the wider neck Cerilliant 2 mL ampoules)

Environmental: Analytical Standards for Priority Substances

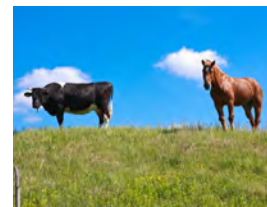
The EU Water Framework Directive (2000/60/EC)[1] was established in the year 2000, committing the member states to achieve "good" qualitative and quantitative status of all water bodies, including rivers, lakes, transitional waters, coastal waters and groundwater by the year 2015. The aim is to protect and restore clean water all across Europe and to ensure its long-term sustainable use.

The comprehensive portfolio of analytical standards and CRMs available at Sigma-Aldrich includes all 33 initial compounds, as well as the 15 newly proposed priority substances.

The complete list is available in Analytix 2014, volume 1 sigma-aldrich.com/analytix2014-1

Food Authenticity

DNA-based analytical technologies like PCR or DNA barcoding are powerful tools used to verify food safety and authenticity. To ensure the safety and authenticity of meat, Sigma-Aldrich has launched a series of DNA standards to support these established methods used by testing labs to detect mislabelled products from farms or retailers.



For more information, visit sigma-aldrich.com/dnastandards

Food Safety: New Mycotoxin CRMs

The analysis of mycotoxins in food and animal feed has been a challenge mainly due to the complexity of food matrices and desired low detection limits. In recent years, significant advances in analytical techniques were applied to the detection of mycotoxins because there has been an increasing need for a method to detect multiple mycotoxins with a single sample preparation and analysis method.

We recently converted our Supelco brand mycotoxin mixtures to Certified Reference Materials. Now you can purchase certified neat, mixtures and matrix standards from one source while meeting ISO/IEC 17025 reference material requirements.

For more information, visit sigma-aldrich.com/mycotoxins

Not only Standards....

Sigma-Aldrich can also provide methods and materials for the complete analytical method. An Application Search facility to enable rapid access to specific applications using HPLC or GC can be found at the link below.

For more information, visit sigma-aldrich.com/applications-search

Additionally, to accompany the range of mycotoxin standards, a comprehensive brochure is available that covers all processes involved in the analysis of mycotoxins in foods. This includes sample processing, extraction strategies, HPLC and GC methods and advice on derivatisation techniques, where needed.

Request a copy of this brochure from your local office or download from sigma-aldrich.com/mycotoxins

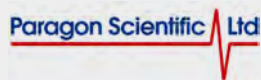


Did you know . . .

For Petrochemical and Viscosity analysis, all Paragon Scientific products are now available world-wide from Sigma-Aldrich?

Paragon Scientific is a UKAS accredited CRM manufacturer with 20 years of experience in the production and certification of quality reference materials. The products are certified in accordance with the requirements of ISO-IEC 17025 and ISO Guide 34.

To learn more, visit
sigma-aldrich.com/paragon



A comprehensive search engine designed especially for standards. Search by compound name, CAS# or Method.



For more information, visit
sigma-aldrich.com/standards-explorer

In the next issue....

- Cosmetics and Personal Care Products (PCPs)
- Inorganic standards for spectroscopy
- Isocyanates
- Microbiology CRMs
- Pesticide mixes
- Steroids and hormones
- ...and more

Useful Links for Convenient Direct Web Access

Overview of all types of analytical standards and CRMs available at
sigma-aldrich.com/standards

Search engine for all standards
sigma-aldrich.com/standards-explorer

Overview of the range of organic CRMs currently available
sigma-aldrich.com/organiccrm

Environmental CRMs
sigma-aldrich.com/ecrm

Overview of the range of food standards & CRMs
sigma-aldrich.com/standardsfood

Flavor and fragrance standards alphabetic listing and by classification
sigma-aldrich.com/flavor

Pesticides and pesticide metabolites
sigma-aldrich.com/pesticides

Proficiency testing in environmental applications
sigma-aldrich.com/pt

Simply complete the form for availability on standards and mixes of your choice
sigma-aldrich.com/custom-standards

**14th International Symposium on
Biological and Environmental Reference Materials (BERM 14)**

The BERM 14 is the continuation of a series of BERM Symposia launched in 1983. Locations have alternated between Europe and the USA, with the exception of BERM 11 (2007) held in Japan.

October 11–15, 2015
Gaylord National Resort & Convention Center
201 Waterfront Street
National Harbor, Maryland 20745 USA



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