

July 2008

Editor: Regina R. Montgomery

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The identification of any commercial product or trade name does not imply endorsement or recommendation by the National Institute of Standards and Technology.

New NIST RMs/SRMs

NIST SRM 971 Hormones in Human Serum



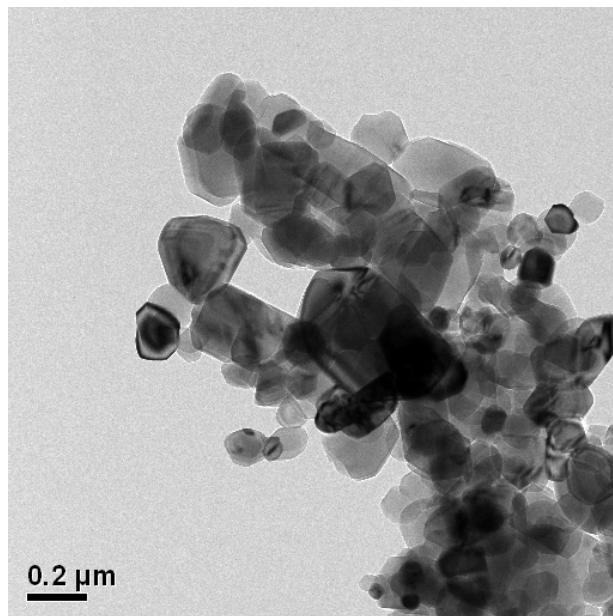
Hormones are chemical messengers that regulate many life functions, and deviations from normal levels can have serious health consequences. Cortisol is a steroid hormone that is produced by the adrenal gland. It is often called the “stress hormone” because it is secreted at higher levels in response to stress. Prolonged elevation of cortisol levels in

the bloodstream can have negative effects on thyroid function, metabolism, and immune function. Measurement of cortisol in serum can be used to diagnose problems in the adrenal or pituitary gland, as well as stress-related disorders. Previous work has indicated that routine clinical measurements may significantly overestimate the cortisol levels present in serum, making accurate diagnosis of cortisol-related disorders difficult. Progesterone, also a steroid hormone, is found at low levels in premenopausal adult women and very low levels in adult men, but levels in women rise substantially during pregnancy. Measurement of progesterone levels can be particularly useful in diagnosing fertility problems and in monitoring high-risk pregnancies. SRM 971 consists of two serum pools, one from normal adult males, and one from normal, premenopausal adult females. Values are assigned for cortisol and progesterone in both serum pools. This SRM will help improve the accuracy of routine clinical assays for hormones and ensure that timely and effective treatment decisions are made.

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NIST SRM 1877 Beryllium Oxide Powder

The National Institute of Standards and Technology (NIST) has issued a new Standard Reference Material (SRM) intended for use in laboratory analysis and health research for the development and validation of analytical methods and instruments used to determine beryllium, as well as for proficiency testing of laboratories involved in beryllium determinations. SRM 1877 Beryllium Oxide Powder consists of high-fired, crystalline beryllium oxide, size separated to pass a 20-mesh screen. The beryllium mass fraction is certified, and information values are provided for specific surface area, specific gravity, count median diameter (CMD) and the associated geometric standard deviation, as well as mass median diameter (MMD) and the associated geometric standard deviation. A transmission electron micrograph is also provided to illustrate the beryllium oxide particle morphology (see figure).



**Transmission electron micrograph of SRM 1877
Beryllium Oxide Powder material**

This SRM was developed as a cooperative effort among NIST, the United States National Nuclear Security Administration, the National Institute for Occupational Safety and Health (NIOSH), the Y-12 National Security Complex, the United States Department of Energy (DOE), the Savannah River Site, Los Alamos National Laboratory, Bureau Veritas North America, Inc., and Brush Wellman, Inc. Sponsorship was provided by the United States National Nuclear Security Administration.

Users of SRM 1877 are cautioned that beryllium-containing materials are known to cause chronic beryllium disease (CBD), a potentially fatal respiratory disease, in susceptible individuals. Beryllium has also been linked to cancer. Therefore, all appropriate safety precautions should be taken to protect workers.

Technical Contact: Michael Winchester
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NIST SRM 2257 PBDE Congeners in 2,2,4-Trimethylpentane
NIST SRM 2258 PBDE 209 in 2,2,4-Trimethylpentane
NIST SRM 2259 80 PCB Congeners in 2,2,4-Trimethylpentane

NIST has a variety of solution Standard Reference Materials (SRMs) available that are useful for validating chromatographic methods, spiking samples, studying analyte recoveries, and determining response factors for organic constituents. Three new solutions will be released soon, two contain polybrominated diphenyl ether (PBDE) congeners and the third contains polychlorinated biphenyl (PCB) congeners. For PBDE analysis, SRM 2257 contains 38 PBDE



congeners at concentrations varying between 1 $\mu\text{g/g}$ and 6 $\mu\text{g/g}$ while SRM 2258 contains only the decabrominated PBDE congener, PBDE 209, at approximately 7 $\mu\text{g/g}$ in 2,2,4-trimethylpentane. The decabromodiphenyl ether is known to debrominate under certain conditions and is provided as a separate solution so that stability can be monitored over time and so that researchers can check for thermal breakdown in their analytical method.

For PCB congener analysis, SRM 2259 contains 80 PCB congeners in 2,2,4-trimethylpentane at concentrations representative of the relative concentrations of PCB congeners in environmental matrices. SRM 2259 will complement the four currently available PCB congener solutions: SRM 1493 Polychlorinated Biphenyl Congeners in 2,2,4-Trimethylpentane, which contains 20 PCB congeners each at a nominal concentration of 0.3 $\mu\text{g/g}$, SRM 2262 Chlorinated Biphenyl Congeners in 2,2,4-Trimethylpentane (nominal concentration 2 $\mu\text{g/mL}$), SRM 2274 PCB Congener Solution-II in Isooctane, which contains 11 PCB congeners at nominal concentrations of 3 $\mu\text{g/g}$, and SRM 2276 Three Planar Polychlorinated Biphenyl (PCB) Congeners in Isooctane, which contains three planar or “non-ortho” PCB congeners at nominal concentrations of 3 $\mu\text{g/g}$.

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Renewals

SRM 46h	Portland Cement Fineness Standard
SRM 136f	Potassium Dichromate (Oxidimetric Standard)
SRM 331a	Copper Ore Mill Tails
SRM 676a	Alumina Powder for Quantitative Analysis by X-ray Diffraction
SRM 869b	Column Selectivity Text Mixture for Liquid Chromatography
SRM 951a	Boric Acid Isotopic Standard
SRM 973	Boric Acid (Acidimetric Standard)
SRM 1648a	Urban Particulate Matter
SRM 1674b	Carbon Dioxide in Nitrogen Lot #7-G-XX
SRM 1685b	Nitric Oxide in Nitrogen Lot #43-L-XX
SRM 1761a	Low Alloy Steel
SRM 1976a	Instrument Response Standard for X-ray Powder Diffraction
SRM 2096	High-Energy Impact Specimen Lot # HH-112
SRM 2619a	Carbon Dioxide in Nitrogen Lot #30-F-XX
SRM 2622a	Carbon Dioxide in Nitrogen Lot #33-E-XX
SRM 2637a	Carbon Monoxide in Nitrogen Lot #56-F-XX
SRM 4322C	Americium-241 Radioactivity Standard
SRM 5001	Two-Dimensional Grid Photomask Standard
RM 8011	Gold Nanoparticles, Nominal 10 nm Diameter
RM 8012	Gold Nanoparticles, Nominal 30 nm Diameter
RM 8013	Gold Nanoparticles, Nominal 60 nm Diameter
RM 8445	Spray-Dried Whole Egg for Allergen Detection
RM 8631a	Medium Test Dust (MTD)

Revisions

Certificate Revisions—Are You Using These Materials?

This is a list of our most recent certificate revisions. Users of NIST SRMs should ensure that they have the most recent certificates. NIST updates certificates for a variety of reasons, such as to extend the expiration date or to include additional information gained from stability testing. If you do not have the most recent certificate for your material, you can print or view a copy from the website at:

http://www.nist.gov/srm or contact SRM at:

Phone: 301-975-2200 **Fax:** 301-926-4751 **Email:** srminfo@nist.gov

SRM 186g pH Standards

Potassium Dihydrogen Phosphate (186-I-g)

Disodium Hydrogen Phosphate (186-II-g)

Editorial Changes

SRM 1021 Glass Beads – Particle Size Distribution

Extension of the Certification Period; Editorial Changes

SRM 1493 Polychlorinated Biphenyl Congeners in 2,2,4-Trimethylpentane

New Expiration Date: 31 December 2017; Editorial Changes

SRM 1619b Sulfur in Residual Fuel Oil (0.7 %)

New Expiration Date: 01 July 2013; Editorial Changes

SRM 1635 Trace Elements in Coal (Subbituminous)

New Expiration Date: 31 December 2013; Editorial Changes

SRM 1640 Trace Elements in Water

New Expiration Date: 01 June 2010; Editorial Changes

SRM 1663a Sulfur Dioxide in Nitrogen Lot #92-F-XX

Extension of the Certification Period

SRM 1804c Toxic Volatile Organic Compounds in Nitrogen Lot #118-C-XX

Extension of the Certification Period

SRM 1921b Infrared Transmission Wavelength Standard

Editorial Changes

SRM 1975 Diesel Particulate Extract

Update of Concentration Values

SRM 2092 Low-Energy Impact Specimen

Editorial Changes

SRM 2098 Super High-Energy Impact Specimen

Editorial Changes

Revisions (continued)

SRM 2262 Chlorinated Biphenyl Congeners in 2,2,4-Trimethylpentane

Extension of the Certification Period

SRM 2298 Sulfur in Gasoline (High Octane)

New Expiration Date: 31 December 2013; Editorial Changes

SRM 2299 Sulfur in Gasoline (Reformulated)

New Expiration Date: 31 December 2013; Editorial Changes

SRM 2639a Carbon Monoxide in Nitrogen Lot #54-E-XX

Extension of the Certification Period

SRM 2640a Carbon Monoxide in Nitrogen Lot #53-C-XX

Extension of the Certification Period; Editorial Changes

SRM 2659a Oxygen in Nitrogen Lot #71-D-XX

Extension of Certification Period

SRM 2721 Crude Oil (Light-Sour)

New Expiration Date: 31 December 2013; Editorial Changes

SRM 2722 Crude Oil (Heavy-Sweet)

New Expiration Date: 31 December 2013; Editorial Changes

SRM 2976 Mussel Tissue (Trace Elements and Methylmercury)

New Expiration Date: 31 January 2018

Update Concentration Value for Methylmercury

SRM 3141a Potassium Standard Solution Lot #891312

Editorial Changes

SRM 3184 Bromide Anion Standard Solution Lot #020701

New Expiration Date: 29 August 2011; Editorial Changes

SRM 4239 Strontium-90 Radioactivity Standard

Editorial Changes

SRM 4919I Strontium-90 Radioactivity Standard

Editorial Changes

RM 8412 Corn (*Zea mays*) Stalk

New Expiration Date: 31 August 2011; Editorial Changes

RM 8413 Corn (*Zea mays*) Kernel

New Expiration Date: 31 August 2011; Editorial Changes

Revisions (continued)

RM 8414 Bovine Muscle Powder

New Expiration Date: 31 August 2011; Editorial Changes

RM 8415 Whole Egg Powder

New Expiration Date: 24 February 2011; Editorial Changes

RM 8418 Wheat Gluten

New Expiration Date: 31 August 2011; Editorial Changes

RM 8432 Corn Starch

New Expiration Date: 31 August 2011; Editorial Changes

RM 8435 Whole Milk Powder

New Expiration Date: 25 February 2011; Editorial Changes

RM 8436 Durum Wheat Flour

New Expiration Date: 31 August 2011; Editorial Changes

RM 8437 Hard Red Spring Wheat Flour

New Expiration Date: 31 August 2011; Editorial Changes

RM 8438 Soft Winter Wheat Flour

New Expiration Date: 31 August 2011; Editorial Changes

RM 8704 Buffalo River Sediment

New Expiration Date: 01 December 2017; Editorial Changes

RM 8983 Silicon Nitride Powder

New Expiration Date: 31 December 2012; Editorial Changes

ORDER NIST SRMS ONLINE

You can now order NIST SRMs through our new online ordering system, which is constantly being updated. **PLEASE NOTE:** Purchase orders and credit cards may be used when ordering an SRM online. This system is efficient, user-friendly, and secure. Our improved search picks up keywords on the detail page along with the words in the title of each SRM.

In addition, we are in the midst of a project to add numerous certificate references for each SRM online. Please also note we are adding many historical archive certificates online for your convenience.

<https://srmors.nist.gov>

Please Register Your Certificate Online!

Users of NIST SRMs should ensure that they have the most recent certificates.

<http://www.nist.gov/srd/srmregform.htm>

SRM 2008 MARKETING CATALOG/CD

If you would like a copy of our new January 2008 SRM Marketing Catalog, Price List or a CD, please call, fax, or email us at:

Ph: 301-975-2200
Fax: 301-948-3730
Email: srminfo@nist.gov

This CD is helpful to SRM users who do not have access to our online catalog on the internet.



NIST SRM 2008 Exhibit Schedule

AACC Clinical Lab Expo

July 27-31, 2008

Washington DC
Convention Center
Washington, DC

NCSLI Symposium

August 3-7, 2008

Walt Disney World
Swan and Dolphin
Orlando, FL

American Chemical Society

ACS - August 17-21, 2008

Pennsylvania Convention Center
Philadelphia, PA

Association of Official Chemists AOAC

September 21-24, 2008

Hyatt Regency Dallas
Dallas, TX

MS&T Show

October 5-9, 2008

David L. Lawrence Convention Center
Pittsburgh, PA

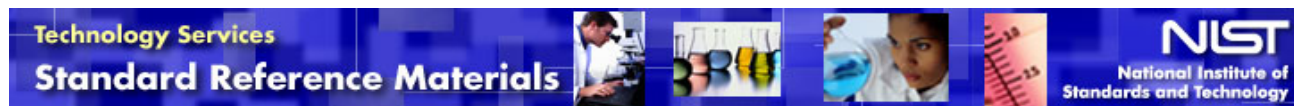
**Materials Research Society Fall Meeting-
MRS**

December 2-4, 2008

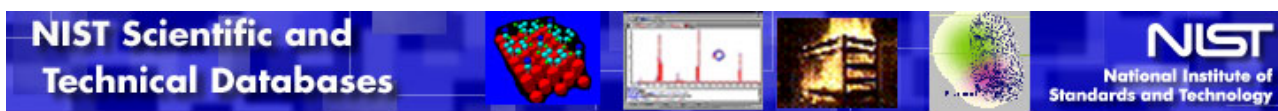
Boston Marriott
Boston



Other NIST Measurement Services Websites of Interest



Standard Reference Materials – Historical Archived Certificates/Reports of Investigation
http://ts.nist.gov/MeasurementServices/ReferenceMaterials/archived_certificates.cfm



NIST Scientific and Technical Databases

<http://www.nist.gov/srd>

NIST Data Gateway

<http://www.srdata.nist.gov/gateway>



Calibrations Services

<http://www.nist.gov/calibrations>