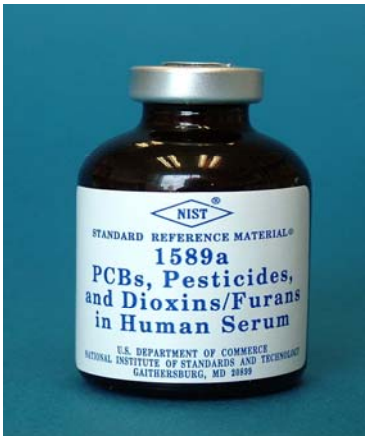
NIST SRM 1957 Organic Contaminants in Non-Fortified Human Serum
NIST SRM 1958 Organic Contaminants in Fortified Human Serum

The National Institute of Standards and Technology (NIST) is collaborating with the Centers for Disease Control and Prevention (CDC) to develop several new SRMs to meet expanding needs for measurement of organic contaminants in human body fluids (serum, milk, and urine) to support human exposure monitoring programs. For the development of the serum SRMs, which are freeze-dried materials, two SRMs were prepared from one 200-liter pool of serum acquired from various blood banks located around the U.S: Wilmington and Greenville, NC; Jacksonville and Orlando, FL; Jonesboro, AR; Flagstaff, AZ; Gallup and Albuquerque, NM; Memphis, TN; Portland, ME; and Carbondale, IL. The pool was divided to produce the two SRMs: one portion of the material is a natural level (non-fortified) and the other portion is a fortified material. The solution used to fortify the serum (as well as two similarly produced milk SRMs, SRM 1953 and 1954) contained 172 selected chlorinated dioxins and furans, brominated dioxins and furans, pesticides, polychlorinated biphenyls (PCBs), brominated flame retardants, polychlorinated naphthalenes, phenols, and toxaphenes, and was added to provide concentrations in the serum approximately 5 to 10 times higher than median concentrations found in the U.S. population. The Certificates of Analysis for these two materials include certified and reference concentration values for selected PCB congeners, chlorinated pesticides, polybrominated diphenyl ether (PBDE) congeners, polychlorinated dibenzo-*p*-dioxin (PCDD) congeners, polychlorinated dibenzofuran (PCDF) congeners, and perfluorinated compounds (PFCs). Between one and five analytical methods performed at NIST, CDC, and/or in a small interlaboratory study were used for the value assignment of the concentrations. These materials replace SRM 1589a PCBs, Pesticides, PBDEs, and Dioxins/Furans in Human Serum and are the first materials with concentration values included for PFCs, an important class of emerging contaminants. SRM 1957 and 1958 will be useful for laboratories developing methods for contaminants in human serum and for the intercomparison of data from human monitoring programs around the world.

For more information, please visit these NIST SRM web links:

https://www-s.nist.gov/srmors/view_detail.cfm?srm=1957
https://www-s.nist.gov/srmors/view_detail.cfm?srm=1958



SRM 1957 Organic Contaminants in Non-Fortified Human Serum and SRM 1958 Organic Contaminants in Fortified Human Serum are replacing SRM 1589a.

Technical Contacts: Michele Schantz and Lane Sander
Email: michele.schantz@nist.gov and lane.sander@nist.gov

NIST SRM 2855 Additive Elements in Polyethylene

The National Institute of Standards and Technology (NIST) has developed a new Standard Reference Material (SRM) 2855 Additive Elements in Polyethylene to aid quality control in the virgin polymers industry. It is the first SRM for elemental analysis for the purpose of monitoring performance additives in polyolefins. SRM 2855 Additive Elements in Polyethylene is a set of three polyethylene blends certified by NIST for selected elements in common performance additives: Na, P, S, Ca, and Zn, plus elements in catalyst fines that contaminate polymers: Si, Ti and Cr. All three SRM materials are also known to be free of the restricted substances: brominated flame retardants, cadmium, mercury and lead. A unit of SRM 2855 consists of one bottle each of Level I Low Density Polyethylene, Level II High Density Polyethylene, and Level III High Density Polyethylene.

SRM 2855 Elements in Polyethylene

Performance additives impart many desirable properties to polymers, *viz*. oxidation stability, thermal stability, light stability, flame retardancy, brightness, clarity, scratch resistance, hydrophilicity, and more. The U.S. plastic additives industry is estimated to be worth over $5 billion, and it supports the larger virgin polymers industry. For cost control and environmental reasons, additive usage must be tightly controlled. One control tool is elemental analysis to monitor additive dosage by quantifying the elements in the finished polymers. SRM 2855 was developed in collaboration with ASTM International D20.70 Subcommittee on Analytical Methods for Plastics. Subcommittee D20.70 maintains Standard D 6247 for X-ray fluorescence spectrometric analysis of additive elements in plastic. SRM 2855 has been used to validate D 6247 in an interlaboratory study that includes other test methods based on inductively coupled plasma optical emission spectrometry and instrumental neutron activation analysis.

For more information, please visit these NIST SRM web links:

https://www-s.nist.gov/srmors/view_detail.cfm?srm=2855

Technical Contact: John R. Sieber
Email: john.sieber@nist.gov