

# NIST

## STANDARD REFERENCE MATERIALS® CATALOGUE

### NIST Offers a Comprehensive Portfolio of SRMs for

- Chemical Compositions
- Physical Properties
- Engineering Materials

Applicable for calibration, validation, method development, quality control and trueness estimation in analytical laboratories.



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# The National Institute of Standards and Technology

World-Class Providers of Standard Reference Materials®



The National Institute of Standards and Technology (NIST) is one of the oldest physical science laboratories in the U.S. The U.S. Congress established the agency to remove a major handicap to U.S. industrial competitiveness at the time – a second-rate measurement infrastructure that lagged behind the capabilities of England, Germany, and other economic rivals. Today, NIST measurements support the smallest of technologies– nanoscale devices so tiny that tens of thousands can fit on the end of a single human hair–to the largest and most complex of humanmade creations, from earthquake–resistant skyscrapers to wide-body jetliners to global communication networks. Sigma-Aldrich® is proud to be the first licensed distributor of NIST Standard Reference Materials (SRMs).

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## Some Milestones of NIST

2012 – David Wineland shares Nobel Prize in Physics

2010 – A new type of clock

2005 – Hall shares Nobel Prize in Physics

2001 – Cornell shares Nobel Prize in Physics

2000 – Optical frequency comb

2000 – Advanced Encryption Standard

1997 – Phillips shares Nobel Prize in Physics

1993 – Internet time service launches

1992 – World's first DNA profiling standard

1985 – Defining the volt

1983 – First SRM made in space

1980 – NIST wins Emmy

1977 – Data Encryption Standard (DES) published

1974 – Smoke detector standards

1972 – World record measurement of the speed of light

1971 – New method of thermometry

1971 – Topografiner

1967 – NIST Center for Neutron Research goes online

1967 – Measuring cholesterol

1966 – “Fingerprinting” free radicals

1962 – Joint Institute for Laboratory Astrophysics founded

1961 – NIST moves to Gaithersburg

1957 – The first digital image

1956 – The fall of parity

1954 – NIST Boulder labs open

1953 – Panoramic dental X-ray machine

1950 – Protecting the Charters of Freedom

1949 – Proof of concept for the first atomic clock

1948 – New light on length measurements

1932 – Setting up the FBI crime lab

1931 – Comparing radiation standards

1926 – Proving ring invented

1913 – Putting rail scales back on track

1906 – First Standard Reference Material (SRM)

1905 – Measures for the marketplace

1901 – NIST founded

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# Chemical Compositions

## Ferrous Metals

### Plain Carbon Steels (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST12H	SRM 12H	Basic Open-Hearth Steel 0.4% Carbon	150 g
NIST13G	SRM 13G	Carbon Steel, 0.6%	150 g
NIST14G	SRM 14G	Carbon Steel, (AISI 1078)	150 g
NIST16F	SRM 16F	Basic Open-Hearth Steel 1% Carbon	150 g
NIST19H	SRM 19H	Basic Electric Steel 0.2% Carbon	150 g
NIST368	SRM 368	Steel (AISI 1211)	150 g

### Low Alloy Steels (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST32E	SRM 32E	LA Steel, Ni-Cr (SAE 3140)	150 g
NIST36B	SRM 36B	LA Steel, Cr-Mo	150 g
NIST125B	SRM 125B	LA Steel High Silicon	100 g
NIST129C	SRM 129C	LA Steel, High Sulfur (SAE 112)	150 g
NIST179	SRM 179	LA Steel, High Silicon	150 g

### Special Low Alloy Steels (Chip and Pin Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST361	SRM 361	LA Steel (AISI 4340)	150 g
NIST363	SRM 363	LA Steel, Cr-V (mod.)	150 g
NIST364	SRM 364	LA Steel, High C (mod.)	150 g
NIST2159	SRM 2159	LA Steel, Carbon and Sulfur Only	200 g
NIST2165	SRM 2165	Low Alloy Steel	150 g
NIST2166	SRM 2166	LA Steel, F	150 g
NIST2168	SRM 2168	High Purity Iron	150 g

### High Alloy Steels (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST126C	SRM 126C	High Alloy Steel, High Nickel	150 g
NIST868	SRM 868	High Temp Alloy Fe-Ni-Co	100 g

### Stainless Steels (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST73C	SRM 73C	Stainless Steel, Cr (SAE 420)	150 g
NIST101G	SRM 101G	Stainless Steel (AISI 304L)	100 g
NIST123C	SRM 123C	Stainless Steel Cr-Ni-Nb (AISI(AISI 348)	150 g
NIST160B	SRM 160B	Stainless Steel Cr-Ni-Mo (AISI 316)	150 g
NIST166C	SRM 166C	Stainless Steel, Low-Carbon (AISI 316L)	100 g
NIST343A	SRM 343A	Stainless Steel (AISI 431)	150 g
NIST893	SRM 893	Stainless Steel (SAE 405)	150 g

### Tool Steels (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST50C	SRM 50C	Tungsten-Chromium-Vanadium Steel	150 g

### Low Alloy Steels (Disk and Rod Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1134	SRM 1134	LA Steel, High Silicon	Disc
NIST1224	SRM 1224	LA Steel, Carbon (AISI 1078)	Disc
NIST1225	SRM 1225	LA Steel AISI 4130	Disc
NIST1226	SRM 1226	LA Steel	Disc
NIST1228	SRM 1228	LA Steel 0.1% C	Disc
NIST1264A	SRM 1264A	LA Steel, High Carbon (mod.)	Disc
NIST1265A	SRM 1265A	Electrolytic Iron	Disc
NIST1269	SRM 1269	Line Pipe (AISI 1526 mod)	Disc
NIST1271	SRM 1271	LA Steel (HSLA-100)	Disc
NIST1286	SRM 1286	Low Alloy Steel (HY 80)	Disc
NIST1761A	SRM 1761A	Low Alloy Steel	Disc
NIST1763A	SRM 1763A	Low Alloy Steel	Disc
NIST1764A	SRM 1764A	Low Alloy Steel	Disc
NIST1765	SRM 1765	Low Alloy Steel	Disc
NIST1766	SRM 1766	Low Alloy Steel	Disc
NIST1767	SRM 1767	Low Alloy Steel	Disc
NIST1768	SRM 1768	High-Purity Iron	Disc

### High Temperature Alloys (Chip and Disk Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST867	SRM 867	Incoloy, 825	100 g
NIST1246	SRM 1246	Incoloy 800	Disc
NIST1247	SRM 1247	Incoloy 825	Disc

### Stainless Steels (Disk Form)

Cat. No.	SRM Code	Description	Unit Size
NIST1155A	SRM 1155A	Stainless Steel (Cr18 Ni 12 Mo 2)	Disc
NIST1171	SRM 1171	Stainless Steel Cr17-Ni11-Ti0.3 AISI 321	Disc
NIST1297	SRM 1297	Stainless Steel (SAE 201)	Disc
NISTC1152A	SRM C1152A	Stainless Steel 18Cr-11Ni	Disc

### Steelmaking Alloys (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST57B	SRM 57B	Silicon Metal	40 g
NIST58A	SRM 58A	Ferrosilicon (73% Si)	75 g
NIST59A	SRM 59A	Ferrosilicon	50 g
NIST64C	SRM 64C	Ferrochromium, High Carbon	100 g
NIST68C	SRM 68C	Ferromanganese, High Carbon	100 g
NIST195	SRM 195	Ferrosilicon (75% Si-HP grade)	75 g

### Cast Irons (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST6G	SRM 6G	Cast Iron	150 g
NIST107C	SRM 107C	Cast Iron (Ni-Cr-Mo)	150 g
NIST122I	SRM 122I	Cast Iron	150 g
NIST338	SRM 338	White Cast Iron (Carbon and Sulfur)	150 g

### Cast Steels, White Cast Irons, and Ductile Irons (Disk Form)

Cat. No.	SRM Code	Description	Unit Size
NISTC2424	SRM C2424	Ductile Iron C	Disc

## Nonferrous Metal

### Copper Base Alloys (Block and Disk Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1107	SRM 1107	Naval Brass UNS 46400	Disc

### Copper "Benchmark" (Block, Chip and Rod Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST457	SRM 457	Unalloyed Copper IV (solid)	ROD
NIST495	SRM 495	Unalloyed Copper II (solid)	ROD

### Nickel Base Alloys (Chip and Disk Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1160	SRM 1160	Elec/Mag Ni–Mo–Fe	Disc
NIST1244	SRM 1244	Inconel 600	Disc
NIST1249	SRM 1249	Ni–Cr–Fe–Nb–Mo Alloy UNS N07718 (disk form)	Disc

### Tin Base Alloys

Cat. No.	SRM Code	Description	Unit Size
NIST54D	SRM 54D	Bearing Metal (Tin Base)	75 g
NIST1728	SRM 1728	Tin Alloy (Sn–3Cu–0.5Ag)	Disc
NIST1729	SRM 1729	Tin Alloy (97Sn–3Pb)	Disc

### Titanium Base Alloys (Chip and Disk Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST173C	SRM 173C	Titanium Alloy (6Al–4V)	50 g
NIST654B	SRM 654B	Titanium Alloy, Al–V	Disc
NIST2454	SRM 2454	Hydrogen In Titanium Alloy	10 g

### Zinc Base Alloys (Block, Chip and Disk Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST625	SRM 625	Zinc–Base A	Block
NIST626	SRM 626	Zinc–Base B	Block
NIST1738	SRM 1738	Zinc–Aluminum Alloy	Disc
NIST1739	SRM 1739	Zinc–Aluminum Alloy	Disc

### Zirconium Base Alloys (Chip Form)

Cat. No.	SRM Code	Description	Unit Size
NIST360B	SRM 360B	Zirconium (Sn–Fe–Cr) Alloy	100 g

## High Purity Materials

### High Purity Metals (Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST685R	SRM 685R	High Purity Gold (Rod)	15 g
NIST885	SRM 885	Refined Copper	200 g
NISTC2418	SRM C2418	High-Purity Lead	Disc

### Stoichiometry (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST17F	SRM 17F	Sucrose Optical Rotation	60 g
NIST84L	SRM 84L	Potassium Hydrogen Phthalate	60 g
NIST136F	SRM 136F	Potassium Dichromate, (Oxidimetric Standard)	60 g
NIST154C	SRM 154C	Titanium Dioxide	90 g
NIST351A	SRM 351A	Sodium Carbonate	50 g
NIST723E	SRM 723E	Tris Acidimetric	50 g
NIST917C	SRM 917C	D-Glucose (Dextrose)	50 g

### Microchemistry (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST141D	SRM 141D	Acetanilide	2 g
NIST143D	SRM 143D	Cystine	2 g
NIST148	SRM 148	Nicotinic Acid	2 g
NIST2141	SRM 2141	Urea	2 g

### Spectrometry, Single Element Standard Solutions

Cat. No.	SRM Code	Description	Unit Size
NIST3101A	SRM 3101A	Aluminum (Al) Standard Solution	5 × 10 mL
NIST3103A	SRM 3103A	Arsenic (As) Standard Solution	50 mL
NIST3108	SRM 3108	Cadmium (Cd) Standard Solution	5 × 10 mL
NIST3109A	SRM 3109A	Calcium (Ca) Standard Solution	5 × 10 mL
NIST3113	SRM 3113	Cobalt (Co) Standard Solution	5 × 10 mL
NIST3114	SRM 3114	Copper (Cu) Standard Solution	50 mL
NIST3128	SRM 3128	Lead (Pb) Standard Solution	5 × 10 mL
NIST3129A	SRM 3129A	Lithium (Li) Standard Solution	5 × 10 mL
NIST3132	SRM 3132	Manganese (Mn) Standard Solution	5 × 10 mL
NIST3133	SRM 3133	Mercury (Hg) Standard Solution	5 × 10 mL
NIST3134	SRM 3134	Molybdenum (Mo) Standard Solution	5 × 10 mL
NIST3136	SRM 3136	Nickel (Ni) Standard Solution	5 × 10 mL
NIST3138	SRM 3138	Palladium (Pd) Standard Solution	5 × 10 mL
NIST3139A	SRM 3139A	Phosphorus (P) Standard Solution	5 × 10 mL
NIST3144	SRM 3144	Rhodium (Rh) Standard Solution	5 × 10 mL
NIST3149	SRM 3149	Selenium (Se) Standard Solution	5 × 10 mL
NIST3151	SRM 3151	Silver (Ag) Standard Solution	5 × 10 mL
NIST3152A	SRM 3152A	Sodium (Na) Standard Solution	50 mL
NIST3162A	SRM 3162A	Titanium (Ti) Standard Solution	50 mL
NIST3165	SRM 3165	Vanadium (V) Standard Solution	5 × 10 mL
NIST3168A	SRM 3168A	Zinc (Zn) Standard Solution	50 mL

### Anion Chromatography (Solution Form)

Cat. No.	SRM Code	Description	Unit Size
NIST3181	SRM 3181	Sulfate Anion Standard Solution	5 × 10 mL
NIST3182	SRM 3182	Chloride Anion Standard Solution	5 × 10 mL
NIST3185	SRM 3185	Nitrate Anion Standard Solution	5 × 10 mL
NIST3186	SRM 3186	Phosphate Anion Standard Solution	5 × 10 mL

## Stable Isotopic Materials (Solid and Solution Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST951A	SRM 951A	Boric Acid Isotopic Standard	10 g
NIST979	SRM 979	Chromium (Isotopic)	0.25 g
NIST980	SRM 980	Magnesium (Isotopic)	0.25 g
NIST981	SRM 981	Natural Lead (Isotopic)	1 g Wire
NIST986	SRM 986	Nickel (Isotopic)	0.5 g
NIST987	SRM 987	Strontium Carbonate (Isotopic Standard)	1 g

## Light Stable Isotopic Materials (Gas, Liquid and Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NISTRM8535A	RM 8535A	VSMOW2 Vienna Standard Mean Ocean Water	20 mL
NISTRM8536	RM 8536	GISP–Water	20 mL
NISTRM8537	RM 8537	SLAP–Water Light Stable Isotopic Std	20 mL
NISTRM8542	RM 8542	IAEA–CH-6 Sucrose (Carbon Isotopes in Sucrose)	1 g
NISTRM8545	RM 8545	LSVEC Lithium Carbonate	0.4 g
NISTRM8568	RM 8568	Nitrogen and Oxygen Isotopes in Nitrate	0.9 g
NISTRM8569	RM 8569	Nitrogen and Oxygen Isotopes in Nitrate	0.9 g
NISTRM8573	RM 8573	L-glutamic Acid USGS40	1 g
NISTRM8574	RM 8574	L-glutamic Acid USGS41	0.5 g

## Health and Industrial Hygiene

### Clinical Laboratory Materials (Gas, Liquid, and Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST900A	SRM 900A	Antiepilepsy Drugs in Frozen Human Serum	4 Vials
NIST911C	SRM 911C	Cholesterol	2 g
NIST912A	SRM 912A	Urea–Clinical	25 g
NIST913B	SRM 913B	Uric Acid	10 g
NIST914A	SRM 914A	Creatinine	10 g
NIST 915B	SRM 915B	Calcium Carbonate (Clinical Standard)	20 g
NIST919B	SRM 919B	Sodium Chloride (Clinical)	30 g
NIST920	SRM 920	DMannitol	50 g
NIST924A	SRM 924A	Lithium Carbonate (Clinical)	30 g
NIST927E	SRM 927E	Bovine Serum Albumin (7% solution)	10 × 2.2 mL
NIST928	SRM 928	Lead Nitrate (Clinical)	30 g
NIST955C	SRM 955C	Toxic Metals in Caprine Blood	4 Vials
NIST967A	SRM 967A	Creatinine in Frozen Human Serum	Set (4)
NIST968E	SRM 968E	Fat–Sol Vitamins, Carotenoids, and Cholesterol in Human Serum	Set (3)
NIST972A	SRM 972A	Vitamin D Metabolites in Frozen Human Serum	4 × 1 mL
NIST1400	SRM 1400	Bone Ash	50 g
NIST1486	SRM 1486	Bone Meal	50 g
NIST1595	SRM 1595	Tripalmitin	2 g
NIST1598A	SRM 1598A	Inorganic Constituents in Animal Serum	2 Vials
NIST1950	SRM 1950	Metabolites in Human Plasma	5 × 1 mL

Cat. No.	SRM Code	Description	Unit Size
NIST1951C	SRM 1951C	Lipids in Frozen Human, Serum	4 Vials
NIST1955	SRM 1955	Homocysteine and Folate in Frozen Human Serum	Set (3)
NIST2389A	SRM 2389A	Amino Acids in 0.1 mol/L Hydrochloric Acid	5 × 1.2 mL
NIST2668	SRM 2668	Toxic Elements in Frozen Human Urine	Set (10)
NIST2669	SRM 2669	Arsenic Species in Frozen Human Urine	Set (10)
NIST2670A	SRM 2670A	Toxic Elements in Urine (Freeze–Dried)	Set (4)
NIST2921	SRM 2921	Human Cardiac Troponin Complex	5 × 115 µL
NIST3667	SRM 3667	Creatinine in Frozen Human Urine	1 × 10 mL
NIST3672	SRM 3672	Organic Contaminants in Smokers' Urine (Frozen)	5 × 10 mL
NIST3673	SRM 3673	Organic Contaminants in Non–Smokers' Urine (Frozen)	5 × 10 mL
NIST3950	SRM 3950	Vitamin B6 in Frozen Human Serum	2 Vials
NISTRM8323	RM 8323	Yeast Protein Extract	3 × 0.2 mL

### Ethanol Solutions

Cat. No.	SRM Code	Description	Unit Size
NIST2891	SRM 2891	Ethanol–Water Solution (nom., 0.02 %)	5 × 1.2 mL
NIST2892	SRM 2892	Ethanol–Water Solution (nom., 0.04 %)	5 × 1.2 mL
NIST2893	SRM 2893	Ethanol–Water Solution (nom., 0.08 %)	5 × 1.2 mL
NIST2894	SRM 2894	Ethanol–Water Solution (nom., 0.1 %)	5 × 1.2 mL
NIST2895	SRM 2895	Ethanol–Water Solution (nom., 0.2 %)	5 × 1.2 mL
NIST2896	SRM 2896	Ethanol–Water Solution (nom., 0.3 %)	5 × 1.2 mL
NIST2900	SRM 2900	Ethanol–Water Solution, (nominal 95.6%)	5 × 10 mL

### DNA Profiling and Nucleic Acid Materials (Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST2372	SRM 2372	Human DNA Quantitation Standard	Set (3)
NIST2391C	SRM 2391C	PCR Based DNA Profiling Standard	6 Vials
NIST2392	SRM 2392	Mitochondrial DNA Sequencing	Set (3)
NIST2392-I	SRM 2392-I	Mitochondrial DNA Sequencing (Human HL-60 DNA)	1 ea.

### Respirable Materials

Cat. No.	SRM Code	Description	Unit Size
NIST1878B	SRM 1878B	Respirable Alpha Quartz	5 g
NIST1879A	SRM 1879A	Respirable Cristobalite	5 g
NIST2786	SRM 2786	Fine Particulate Matter <4 micrometers	1 Bottle

### Lead in Paint, Dust, and Soil (Powder and Sheet Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST2569	SRM 2569	Lead Paint Films for Children's Products	8 Sheets
NIST2573	SRM 2573	Lead Paint Film (Red), Nominal 1.0 mg/cm <sup>2</sup>	1 + Blank
NIST2581	SRM 2581	Powdered Paint Nominal 0.5 % Lead	35 g
NIST2582	SRM 2582	Powdered Paint Nominal 200 mg/kg Lead	20 g
NIST2589	SRM 2589	Powdered Paint Nominal 10% Lead	35 g

## Inorganics

### Metal (Inorganics) Constituents in Natural Matrices (Liquid and Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1640A	SRM 1640A	Trace Elements in Natural Water	250 mL
NIST1646A	SRM 1646A	Estuarine Sediment	70 g
NIST1648A	SRM 1648A	Urban Particulate Matter	2 g
NIST2583	SRM 2583	Trace Elements in Indoor Dust	2 g
NIST2586	SRM 2586	Trace Elements in Soil (contains lead from paint)	55 g
NIST2587	SRM 2587	Trace Elements in Soil (contains lead from paint)	55 g
NIST2702	SRM 2702	Inorganics in Marine Sediment	50 g
NIST2709A	SRM 2709A	San Joaquin Soil	50 g
NIST2710A	SRM 2710A	Montana I Soil	50 g
NIST2711A	SRM 2711A	Montana II Soil	50 g
NIST2781	SRM 2781	Domestic Sludge	40 g
NIST2783	SRM 2783	Air Particulate on Filter Media	2 + 2 Blank

### Environmental Matrices with Carbon Values

Cat. No.	SRM Code	Description	Unit Size
NIST1632D	SRM 1632D	Trace Elements in Coal, (Bituminous)	50 g
NIST2719	SRM 2719	Calcined Petroleum Coke	50 g
NIST2775	SRM 2775	Foundry Coke	50 g
NIST2776	SRM 2776	Furnace Coke	50 g

### Used Auto Catalysts (Powder)

Cat. No.	SRM Code	Description	Unit Size
NIST2556	SRM 2556	Recycled Pellet (Autocatalyst)	70 g
NIST2557	SRM 2557	Recycled Monolith (Autocatalyst)	70 g

## Primary Gas Mixtures

(Available in the US only)

Cat. No.	SRM Code	Description	Unit Size
NIST1678C	SRM 1678C	Carbon Monoxide in Nitrogen (Nominal 50 umol/mol)	Cylinder
NIST1680B	SRM 1680B	Carbon Monoxide in Nitrogen (Nominal 500 umol/mol)	Cylinder
NIST1683B	SRM 1683B	NO/N <sub>2</sub> 50 umol/mol	Cylinder
NIST1684B	SRM 1684B	NO/N <sub>2</sub> 100 umol/mol	Cylinder
NIST1687B	SRM 1687B	NO/N <sub>2</sub> 1000 umol/mol	Cylinder

## Fossil and Alternative Fuels

### Metal Constituents in Fossil Fuels (Liquid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1634C	SRM 1634C	Trace Elements in Fuel Oil	100 mL

### Sulfur, Mercury, and Chlorine in Fuels (Liquid And Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1616B	SRM 1616B	Sulfur in Kerosene (Low Level)	100 mL
NIST1619B	SRM 1619B	Sulfur in Residual Fuel Oil (0.7%)	100 mL
NIST1621E	SRM 1621E	Sulfur in Residual Fuel Oil (1%)	100 mL
NIST1624D	SRM 1624D	Sulfur in Diesel Fuel Oil, 0.4%	100 mL
NIST2298	SRM 2298	Sulfur in Gasoline (High Octane)	100 mL
NIST2299	SRM 2299	Sulfur in Gasoline (Reformulated)	100 mL
NIST2683C	SRM 2683C	Bituminous Coal (Sulfur, Mercury, and Chlorine)	50 g
NIST2685C	SRM 2685C	Bituminous Coal (Nominal Mass Fraction 5 %Sulfur)	50 g
NIST2692C	SRM 2692C	Bituminous Coal (Sulfur, Mercury and Chlorine)	50 g
NIST2693	SRM 2693	Bituminous Coal (Sulfur, Mercury, and Chlorine)	50 g
NIST2720	SRM 2720	Sulfur in Di-n-Butyl Sulfide	5 × 4.5 mL
NIST2721	SRM 2721	Crude Oil	5 × 10 mL
NIST2722	SRM 2722	Crude Oil	5 × 10 mL
NIST2723B	SRM 2723B	Sulfur in Diesel Fuel Oil (Nominal Mass Fraction 10 mg/kg)	
NIST2770	SRM 2770	Sulfur in Diesel Fuel Oil (40 mg/kg)	100 mL
NIST2772	SRM 2772	B100 Biodiesel (Soy-Based)	50 mL
NIST2773	SRM 2773	B100 Biodiesel (Animal-Based)	50 mL

### Moisture in Oils and Alcohols (Liquid Form)

Cat. No.	SRM Code	Description	Unit Size
NIST2890	SRM 2890	Water Saturated 1-Octanol	5 × 2 mL
NISTRM8506A	RM 8506A	Moisture in Transformer Oil	5 × 9.5 mL

### Fossil Fuel: Trace Elements (Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1633C	SRM 1633C	Trace Elements in Coal Fly Ash	75 g
NIST1635A	SRM 1635A	Trace Elements in Coal, (Subbituminous)	50 g
NIST2689	SRM 2689	Coal Fly Ash	3 × 10 g
NIST2690	SRM 2690	Coal Fly Ash	3 × 10 g
NIST2691	SRM 2691	Coal Fly Ash	3 × 10 g

### Biomass Feedstock

Cat. No.	SRM Code	Description	Unit Size
NISTRM8491	RM 8491	Sugarcane Bagasse Whole Biomass Feedstock	50 g
NISTRM8494	RM 8494	Wheat Straw Whole Biomass Feedstock	50 g

## Organics

### Organics

Cat. No.	SRM Code	Description	Unit Size
NIST1597A	SRM 1597A	Complex Mixture of Polycyclic Aromatic Hydrocarbons Coal Tar	1 × 1.3 mL
NIST1649B	SRM 1649B	Urban Dust	2 g
NIST1650B	SRM 1650B	Diesel Particulate Matter	200 mg
NIST1941B	SRM 1941B	Organics in Marine Sediment	50 g
NIST1944	SRM 1944	New York/New Jersey Waterway Sediment	50 g
NIST1954	SRM 1954	Organic Contaminants in Fortified Human Milk	5 × 5 mL
NIST1957	SRM 1957	Organic Contaminants in Non-Fortified Human Serum	5 × 10 mL
NIST1958	SRM 1958	Organic Contaminants in Fortified Human Serum	5 × 10 mL
NIST1974C	SRM 1974C	Organics in Mussel Tissue, ( <i>Mytilus edulis</i> )	5 × 10 g
NIST2260A	SRM 2260A	Aromatic Hydrocarbon in Toluene	5 × 1.2 mL
NIST2262	SRM 2262	Chlorinated Biphenyl Cogeners in Isooctane	5 × 1.2 mL
NIST2270	SRM 2270	Perdeuterated PAH-II Solution in Hexane/Toluene	5 × 1.2 mL
NIST2275	SRM 2275	Chlorinated Pesticide Solution-II in Isooctane	5 × 1.2 mL
NIST2585	SRM 2585	Organic Contaminants in House Dust	10 g
NIST2779	SRM 2779	Gulf of Mexico Crude Oil	5 × 1.2 mL
NIST2974A	SRM 2974A	Organics in Freeze-Dried Mussel Tissue ( <i>Mytilus edulis</i> )	5 g
NIST2975	SRM 2975	Diesel Particulate Matter	1 g
NIST3672	SRM 3672	Organic Contaminants in Smokers' Urine (Frozen)	5 × 10 mL
NIST3673	SRM 3673	Organic Contaminants in Non-Smokers' Urine (Frozen)	5 × 10 mL

### EPA: Organic Compounds Related to Water Analysis (Including Drinking Water)

Cat. No.	SRM Code	Description	Unit Size
NIST3074	SRM 3074	Phthalates in Methanol	5 × 1.2 mL

## Food and Agriculture

### Foods and Beverages

Cat. No.	SRM Code	Description	Unit Size
NIST1544	SRM 1544	Fatty Acids/Cholesterol in Frozen Diet Composite	4 × 15 g
NIST1546A	SRM 1546A	Meat Homogenate	4 × 85 g
NIST1548A	SRM 1548A	Typical Diet	Set (2)
NIST1549A	SRM 1549A	Whole Milk Powder	5 × 10 g
NIST1566B	SRM 1566B	Oyster Tissue	25 g
NIST1568B	SRM 1568B	Rice Flour	50 g
NIST1577C	SRM 1577C	Bovine Liver	20 g
NIST1849A	SRM 1849A	Infant/Adult Nutritional Formula	10 × 10 g
NIST1946	SRM 1946	Lake Superior Fish Tissue	5 × 7-9 g
NIST1947	SRM 1947	Lake Michigan Fish Tissue	5 × 8 g
NIST2387	SRM 2387	Peanut Butter	3 × 170 g
NIST2383A	SRM 2383A	Baby Food Composite	4 × 70 g
NIST3233	SRM 3233	Fortified Breakfast Cereal	60 g
NIST3234	SRM 3234	Soy Flour	50 g

### Food Contaminants and Allergens

Cat. No.	SRM Code	Description	Unit Size
NIST2387	SRM 2387	Peanut Butter	3 × 170 g
NISTRM8445	RM 8445	Spray-Dried Whole Egg for Allergen Detection	5 g

### Agricultural Materials (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST1515	SRM 1515	Apple Leaves	50 g
NIST1547	SRM 1547	Peach Leaves	50 g
NIST1570A	SRM 1570A	Trace Elements in Spinach Leaves	60 g
NIST1573A	SRM 1573A	Tomato Leaves	50 g
NIST1575A	SRM 1575A	Trace Elements in Pine Needles	50 g
NIST2695	SRM 2695	Fluoride in Vegetation	2 × 25 g

### Fertilizers (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST193	SRM 193	Potassium Nitrate	90 g
NIST194A	SRM 194A	Ammonium Dihydrogen Phosphate	90 g
NIST200B	SRM 200B	Potassium Dihydrogen Phosphate, (KH <sub>2</sub> PO <sub>4</sub> )	90 g
NIST695	SRM 695	Trace Elements in Multi-Nutrient Fertilizer	70 g

### Dietary Supplement Materials (Includes Nutraceuticals and Herbs)

Cat. No.	SRM Code	Description	Unit Size
NIST3275	SRM 3275	Omega-3 and Omega-6 Fatty Acids in Fish Oil	3 × 1.2 mL
NIST3280	SRM 3280	Multivitamin/Multielement Tablets	30 Tablets



## Geological Materials and Ores

### Ores (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST25D	SRM 25D	Manganese Ore	60 g
NIST69B	SRM 69B	Bauxite (Arkansas)	60 g
NIST120C	SRM 120C	Phosphate Rock (Florida)	90 g
NIST181	SRM 181	Lithium Ore (Spodumene)	45 g
NIST330A	SRM 330A	Copper Ore Mill Heads	90 g
NIST331A	SRM 331A	Copper Ore Mill Tails	40 g
NIST333A	SRM 333A	Molybdenum Sulfide Concentrate	60 g
NIST423	SRM 423	Molybdenum Oxide Concentrate	60 g
NIST600	SRM 600	Bauxite, Australian	90 g
NIST670	SRM 670	Rutile Ore	90 g
NIST690	SRM 690	Iron Ore Canada	100 g
NIST691	SRM 691	Iron Oxide, Reduced	100 g
NIST692	SRM 692	Iron Ore, Labrador	100 g
NIST693	SRM 693	Iron Ore, Nimba	100 g
NIST694	SRM 694	Phosphate Rock, Western	90 g
NIST696	SRM 696	Bauxite, Surinam	60 g
NIST697	SRM 697	Bauxite, Dominican	60 g
NIST698	SRM 698	Bauxite, Jamaican	60 g
NIST699	SRM 699	Alumina (Reduction Grade)	60 g
NIST886	SRM 886	Gold, Ore Refractory	200 g
NIST1835	SRM 1835	Borate Ore	60 g
NIST2430	SRM 2430	Scheelite Ore	100 g

### Clays (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST97B	SRM 97B	Flint Clay	60 g
NIST98B	SRM 98B	Plastic Clay	60 g
NIST679	SRM 679	Brick Clay	40 g

### Rock and Minerals (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST1D	SRM 1D	Limestone, Argillaceous	70 g
NIST88B	SRM 88B	Dolomitic Limestone	75 g
NIST99B	SRM 99B	Soda Feldspar	40 g
NIST278	SRM 278	Obsidian Rock	35 g
NIST688	SRM 688	Basalt Rock	60 g

### Refractories (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST77A	SRM 77A	Burnt Refractory, (Al <sub>2</sub> O <sub>3</sub> -60%)	75 g

### Soils, Sediments, and Sludges (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST2701	SRM 2701	Hexavalent Chromium in Contaminated Soil (High Level)	75 g

## Forensics

### Drugs of Abuse (Hair, Serum, and Urine)

Cat. No.	SRM Code	Description	Unit Size
NIST1507B	SRM 1507B	THC-COOH in Freeze-Dried Urine	Set (3)

## Ceramics and Glasses

### Glasses (Powder and Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST89	SRM 89	Glass, Lead Barium	45 g
NIST93A	SRM 93A	Borosilicate Glass	WAFER
NIST165A	SRM 165A	Glass Sand (Low Iron)	75 g
NIST620	SRM 620	Soda Lime, Flat	Set (3)
NIST1411	SRM 1411	Soft Borosilicate Glass	Set (10)
NIST1413	SRM 1413	Glass Sand (High Alumina)	75 g
NIST1830	SRM 1830	Soda Lime Float (Glass)	3 Platelets
NIST1831	SRM 1831	Soda Lime Sheet (Glass)	3 Platelets
NIST2696	SRM 2696	Silica Fume	70 g

### Trace Elements (Wafer Form)

Cat. No.	SRM Code	Description	Unit Size
NIST611	SRM 611	Trace Elements in Glass	4 Wafers
NIST612	SRM 612	Trace Elements in Glass	4 Wafers
NIST613	SRM 613	Trace Elements in Glass	4 Wafers
NIST614	SRM 614	Trace Elements in Glass	4 Wafers
NIST616	SRM 616	Trace Elements in Glass	4 Wafers

## Cement

### Cements and Related Materials (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST633A	SRM 633A	Portland Cement	4 × 5 g
NIST634A	SRM 634A	Portland Cement	100 g
NIST1880B	SRM 1880B	Portland Cement	4 × 5 g
NIST1881A	SRM 1881A	Portland Cement	4 × 5 g
NIST1882A	SRM 1882A	Calcium Aluminate Cement	4 × 5 g
NIST1883A	SRM 1883A	Calcium Aluminate Cement	4 × 5 g
NIST1884B	SRM 1884B	Portland Cement	4 × 4.5 g
SRM 1885B	SRM 1885B	Portland Cement	4 × 5 g
NIST1886A	SRM 1886A	Portland Cement (White Portland Cement with Low Iron)	4 × 5 g
NIST1887B	SRM 1887B	Portland Cement	5 × 4 g
NIST1888B	SRM 1888B	Portland Cement	4 × 5 g
NIST1889A	SRM 1889A	Portland Cement (Blended with Limestone)	4 × 5 g

### Portland Cement Clinkers (Solid Form)

Cat. No.	SRM Code	Description	Unit Size
NIST2686A	SRM 2686A	Portland Cement Clinker	4 × 7 g
NIST2687	SRM 2687	Portland Cement Clinker	3 × 10 g

## Engine Wear Materials

### Lubricating Oils

Cat. No.	SRM Code	Description	Wafers
NIST1819A	SRM 1819A	Sulfur in Lub Base Oil	Set (5)
NIST1848	SRM 1848	Lubricating Oil Additive Pkg	100 g

# Physical Properties

## Ion Activity

### pH Calibration (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST185I	SRM 185I	Potassium Hydrogen Phthalate, pH Standard	60 g
NIST186G	SRM 186G	pH Standards, (Set of 186-I-g + 186-II-g)	Set
NIST187E	SRM 187E	Sodium Tetraborate (Borax), pH	30 g
NIST188	SRM 188	Potassium Hydrogen Tartrate, pH	60 g
NIST189C	SRM 189C	Potassium Tetroxalate Dihydrate pH Standard	65 g
NIST191D	SRM 191D	pH Standards, (Set of 191d-I + 191d-II)	25 g+30 g

### Ion-Selective Electrode Calibration (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST220I	SRM 220I	Sodium Chloride(Ion-Selective)	125 g

## Polymeric Properties

Cat. No.	SRM Code	Description	Unit Size
NIST1484A	SRM 1484A	Polyethylene, Linear	0.3 g

## Optical Properties

### Molecular Absorption (Film, Filter, Solid, and Solution Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1921B	SRM 1921B	IR Transmission Wavelength (Polystyrene Film)	1 Card

### Optical Properties

Cat. No.	SRM Code	Description	Unit Size
NIST17f	SRM 17f	Sucrose Optical Rotation	60 g
NIST1922	SRM 1922	Liquid Refractive Index – Mineral Oil	30 mL
NIST2241	SRM 2241	Rel.Intensity for Raman Spec. (785 nm)	1 ea.
NIST2242	SRM 2242	Rel.Intensity Corr.Std. for Raman Spectroscopy (532 nm Ex)	1 ea.
NIST2941	SRM 2941	Relative Intensity Correction Standard for Fluorescence Spectroscopy: Green Emission 427 nm	1 ea.

## X-Ray Diffraction

### X-Ray Diffraction (Powder and Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST640E	SRM 640E	Silicon Powder Line Position + Line Shape Std for Powder Diffraction (Silicon Powder)	7.5 g
NIST674B	SRM 674B	X-Ray Powder Diffraction Intensity Set (Quantitative Powder Diffraction Standard)	10 g
NIST675	SRM 675	Line Position, Mica (XRD)	7.5 g
NIST676A	SRM 676A	Alumina Powder for Quantitative Analysis by X-ray Diffraction	20 g
NIST1976B	SRM 1976B	Instrument Response Standard for X-Ray Powder Diffraction	Disc

## Thermodynamic Properties

### Combustion Calorimetry (Powder Form)

Cat. No.	SRM Code	Description	Unit Size
NIST39J	SRM 39J	Benzoic Acid (Calorimetric Standard)	30 g

### Differential Scanning Calorimetry and Differential Thermal Analysis

Cat. No.	SRM Code	Description	Unit Size
NIST720	SRM 720	Sapphire Heat Capacity	15 g
NIST2232	SRM 2232	Indium DSC Calibration Standard – Temperature and Enthalpy of Fusion	1 g

### Reference Points (solid forms)

Cat. No.	SRM Code	Description	Unit Size
NIST742	SRM 742	Alumina (Reference Point)	10 g

### Thermal Conductivity of Iron (Rod Form), Fibrous Glass, and Polystyrene

Cat. No.	SRM Code	Description	Unit Size
NIST1450D	SRM 1450D	Thermal Conductivity Fibrous Glass Board	1 ea.

### Thermal Expansion of Metal, Glass (Rod Form)

Cat. No.	SRM Code	Description	Unit Size
NIST738	SRM 738	Stainless Steel – Thermal Expansion	51 × 6.4 mm

### Thermoelectric Materials

Cat. No.	SRM Code	Description	Unit Size
NIST3451	SRM 3451	Low Temperature Seebeck Coefficient Standard	Bar

## Metrology

### Nonmagnetic Coating Thickness (Plate Form)

Cat. No.	SRM Code	Description	Unit Size
NIST1358B	SRM 1358B	Coating Thickness Standard, (Nonmagnetic Coating on Steel)	Set (5)
NIST1359B	SRM 1359B	Coating Thickness Standard (Nonmagnetic Coating on Steel)	Set (5)
NIST1362B	SRM 1362B	Coating Thickness Standard (Nonmagnetic Coating on Steel)	Set (5)
NIST1363B	SRM 1363B	Coating Thickness Standard (Nonmagnetic Coating on Steel)	Set (5)

## Liquids and Glasses

### Viscosity of Glass (Bar Form)

Cat. No.	SRM Code	Description	Unit Size
NIST717A	SRM 717A	Hi Boron Glass Viscosity	Disc

### Density

Cat. No.	SRM Code	Description	Unit Size
NIST211D	SRM 211E	Toluene Liquid Density	4 × 5 mL
NIST2214	SRM 2214	Isooctane Liquid Density	4 × 5 mL

# Engineering Materials

## Sizing

### Particle Size (Powder and Solid Forms)

Cat. No.	SRM Code	Description	Unit Size
NIST1003C	SRM 1003C	Glass Beads – Particle Size Distribution	28 g
NIST1004B	SRM 1004B	Glass Beads – Particle Size Distribution	43 g
NIST1017B	SRM 1017B	Glass (Particle Size)	70 g
NIST1018B	SRM 1018B	Glass (Particle Size)	87 g
NIST1019B	SRM 1019B	Glass (Particle Size)	200 g
NIST1021	SRM 1021	Glass Beads–Particle Size Distribution	4 g
NIST1964	SRM 1964	Nominal 60 nm Diameter Polystyrene Spheres	5 mL
NIST1982	SRM 1982	Zirconia Thermal Spray Powder	10 g
NISTRM8011	RM 8011	Gold Nanoparticles, Nominal 10 nm Diameter	10 mL
NISTRM8012	RM 8012	Gold Nanoparticles, Nominal 30 nm Diameter	10 mL
NISTRM8013	RM 8013	Gold Nanoparticles, Nominal 60 nm Diameter	10 mL

### Cement and Coal Fly Ash Fineness

Cat. No.	SRM Code	Description	Unit Size
NIST46H	SRM 46H	Portland Cement Fineness Std	10 × 5 g
NIST114Q	SRM 114Q	Portland Cement Fineness Std	20 Vials

### Surface Area of Powders and Mercury Porosimetry Standards

Cat. No.	SRM Code	Description	Unit Size
NIST1898	SRM 1898	Titanium Dioxide Nanomaterial	15 g
NIST1900	SRM 1900	Specific Surface Area for BET	4 g
NIST2206	SRM 2206	Controlled Pore Glass - BET Specific Surface Area (300 nm)	5 g
NIST2207	SRM 2207	Controlled Pore Glass - BET Specific Surface Area (18 nm)	5 g

### Particle Count Materials (powder and suspension forms)

Cat. No.	SRM Code	Description	Unit Size
NIST2806B	SRM 2806B	Medium Test Dust(MTD) in Hydraulic Fluid	2 × 400 mL
NISTRM8631A	RM 8631A	Medium Test Dust (MTD)	20 g

## Nanomaterials

### Nanomaterials (Less Than or Equal to 100 nm)

Cat. No.	SRM Code	Description	Unit Size
NIST1898	SRM 1898	Titanium Dioxide Nanomaterial	15 g
NIST1964	SRM 1964	Nominal 60 nm Diameter Polystyrene Spheres	5 mL
NIST2483	SRM 2483	Single Wall Carbon Nanotubes (Raw Soot)	250 mg
NISTRM8011	RM 8011	Gold Nanoparticles, Nominal 10 nm Diameter	10 mL
NISTRM8012	RM 8012	Gold Nanoparticles, Nominal 30 nm Diameter	10 mL
NISTRM8013	RM 8013	Gold Nanoparticles, Nominal 60 nm Diameter	10 mL

## Miscellaneous Performance Engineering Materials

### Impact Standards: Charpy V-Notch and Izod Impact Specimens

Cat. No.	SRM Code	Description	Unit Size
NIST2092	SRM 2092	Low-Energy Charpy V-Notch Impact Specimen (NIST-Verification)	Set
NIST2093	SRM 2093	Low Energy Charpy V-notch Impact Specimen Self Verif	Set
NIST2096	SRM 2096	High-Energy Charpy V-Notch Impact Specimen (NIST-Verification)	Set
NIST2097	SRM 2097	High Energy Charpy V notch Impact Specimen Self Verif	Set

### Tape Adhesion Testing (Sheet Form)

Cat. No.	SRM Code	Description	Unit Size
NIST1810A	SRM 1810A	Linerboard	50 ea.

### Standard Bullet and Cartridge Case

Cat. No.	SRM Code	Description	Unit Size
NIST2461	SRM 2461	Standard Cartridge Case	1 ea.

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