ICP Method 200.7

SW-846, Method 200.7 & 6010 Calibration Standards

Five calibration standards are available for routine instrument calibration for use in SW-846, Method 200.7 (rev. March 1983) and Method 6010 (rev. 0, Sept. 1986).

Mixed Calibration Standard #1

MCS-01-1 100 mL
MCS-01-5 500 mL
6 components in 2% HNO_3

Element	µg/mL	λ (nm)
Be *(Beryllium)*	50	313.042
Cd *(Cadmium)*	150	214.438
Pb *(Lead)*	500	220.353
Mn *(Manganese)*	100	220.353
Se *(Selenium)*	200	196.090
Zn *(Zinc)*	150	213.856

Mixed Calibration Standard #2

MCS-02-1 100 mL
MCS-02-5 500 mL
5 components in 2% HNO_3

Element	µg/mL	λ (nm)
Ba *(Barium)*	100	233.527
Co *(Cobalt)*	100	228.61
Cu *(Copper)*	100	324.754
Fe *(Iron)*	10,000	259.940
V *(Vanadium)*	100	292.402

Mixed Calibration Standard #3

MCS-03-1 100 mL
MCS-03-5 500 mL
3 components in 2% HNO_3 tr. HF

Element	µg/mL	λ (nm)
As *(Arsenic)*	500	189.042
Mo *(Molybdenum)*	100	202.030
Si *(Silicon)*	100	251.611

Mixed Calibration Standard #4

MCS-04-1 100 mL
MCS-04-5 500 mL
6 components in 2% HNO_3

Element	µg/mL	λ (nm)
Al *(Aluminum)*	200	396.152
Ca *(Calcium)*	1000	317.933
Cr *(Chromium)*	20	205.552
Ni *(Nickel)*	20	231.604
K (Potassium)	400	766.490
Na *(Sodium)*	200	589.592

Mixed Calibration Standard #5

MCS-05-1 100 mL
MCS-05-5 500 mL
5 components in 2% HNO_3

Element	µg/mL	λ (nm)
Sb *(Antimony)*	200	217.581
B *(Boron)*	100	249.773
Mg *(Magnesium)*	1000	279.553
Ag *(Silver)*	50	328.068
Tl *(Thallium)*	200	351.924

Mixed Calibration Standards (1986) Set

MCS-1986-1-SET 5 x 100 mL

MCS-01-1, MCS-02-1, MCS-03-1, MCS-04-1, MCS-05-1

MCS-1986-5-SET 5 x 500 mL

MCS-01-5, MCS-02-5, MCS-03-5, MCS-04-5, MCS-05-5

Method 200.7 Spiking Solutions for Drinking Water

Spiking Standard #1R

M-200.7-SP-01-R * 50 mL
4 components in H_2O tr. HF

Element	µg/mL	λ (nm)
B *(Boron)*	400	249.678
Mo *(Molybdenum)*	200	203.844
Si *(Silicon)* †	2000	251.611
P (Phosphorus)	400	214.914

† 4278 µg/mL SiO_2

Spiking Standard #2R

M-200.7-SP-02-R 50 mL
M-200.7-SP-02-R-1 100 mL
M-200.7-SP-02-R-5 500 mL
4 components in 2% HNO_3

Element	µg/mL	λ (nm)
Ca *(Calcium)*	10,000	315.887
Mg *(Magnesium)*	10,000	279.079
K *(Potassium)*	10,000	766.491
Na *(Sodium)*	10,000	588.595

Spiking Standard #3

M-200.7-SP-03 50 mL
12 components in 5% HNO_3

Element	µg/mL	λ (nm)
Al *(Aluminum)*	2000	396.152
Ba *(Barium)*	2000	233.527
Be *(Beryllium)*	50	313.042
Cr *(Chromium)*	200	205.552
Co *(Cobalt)*	500	228.616
Cu *(Copper)*	250	324.754
Fe *(Iron)*	1000	259.940
Mn *(Manganese)*	500	257.610
Ni *(Nickel)*	500	231.604
Ag *(Silver)*	50	328.068
V *(Vanadium)*	500	292.402
Zn *(Zinc)*	500	213.856

Method 200.7 Spiking Set

M-200.7-SP-R-SET 5 x 50 mL

M-200.7-SP-01-R, M-200.7-SP-02-R, M-200.7-SP-03, M-200.7-SP-04-R, M-200.7-SP-05-R

Spiking Standard #4R

M-200.7-SP-04-R 50 mL
1 component in dilute HNO_3

Element	µg/mL	λ (nm)
Sb *(Antimony)*	200	206.833

Spiking Standard #5R

M-200.7-SP-05-R 50 mL
5 components in 5% HNO_3

Element	µg/mL	λ (nm)
As *(Arsenic)*	200	193.696
Cd *(Cadmium)*	100	226.502
Pb *(Lead)*	200	220.353
Se *(Selenium)*	400	196.090
Tl *(Thallium)*	400	190.864

TRACEABLE AccuTrace Reference Standards CERTIFIED

Don't see the exact solution you need?

Call our Inorganic Technical Service Department for a custom solution or synthesis quotation or, if you prefer, fax us the custom quotation request form in the back of the catalog.

ICP Method 200.7

Method 200.7 Interference Check Standards

For use in testing and verifying the inter-element spectral correction process.

SIC Solution #1

Used to evaluate the spectral interference for the analytes: Al, Sb, Se, Sn, V

SICS-01-1 100 mL
SICS-01-5 500 mL

1 component in 2% HNO_3 tr. HF

Element	µg/mL	λ (nm)
Mo *(Molybdenum)*	50	203.844

SIC Solution #2

Used to evaluate the spectral interference for the analytes: Sb, Pb, Zn, Mo, As, Be

SICS-02-1 100 mL
SICS-02-5 500 mL

5 components in 2% HNO_3

Element	µg/mL	λ (nm)
Cr *(Chromium)*	20	205.552
Co *(Cobalt)*	10	228.616
Cu *(Copper)*	40	324.754
Mn *(Manganese)*	20	257.610
V *(Vanadium)*	10	292.402

SIC Solution #3

Used to evaluate the spectral interference for the analytes: Sb, Zn, As, Ag, Cr, Mn, V

SICS-03-1 100 mL
SICS-03-5 500 mL

3 components in 2% HNO_3

Element	µg/mL	λ (nm)
Al *(Aluminum)*	30	308.215
Fe *(Iron)*	150	259.940
Ni *(Nickel)*	20	231.604

Check Solutions Sets

SIC-1-SET 3 x 100 mL

SICS-01-1
SICS-02-1
SICS-03-1

SIC-5-SET 3 x 500 mL

SICS-01-5
SICS-02-5
SICS-03-5

Since everyone experiences different interference problems in their analysis, it is often easiest to design standards to match the "real world" samples. Below is a set of single element standards that can be used for making these standards in your lab. If you would like us to formulate these solutions for you, please call our Technical Service Department for a custom quote.

Spectral Interference Check Set

SIC-SING-1-SET 9 x 100 mL

Single Elements @ 1,000 µg/mL

Al *(Aluminum)*	ICP-01N-1
Cr *(Chromium)*	ICP-13N-1
Co *(Cobalt)*	ICP-14N-1
Cu *(Copper)*	ICP-15N-1
Fe *(Iron)*	ICP-27N-1
Mn *(Manganese)*	ICP-33N-1
Mo *(Molybdenum)*	ICP-35W-1
Ni *(Nickel)*	ICP-37N-1
V *(Vanadium)*	ICP-67N-1

These products require a Hazardous Shipping Fee except products marked with an asterisk *

Method 200.7 Performance Check, Fortifying Solution & Mercury Standard

Laboratory Performance Check Standard

For use in demonstrating the initial and continuing verification of the calibration curves produced by this method.

LPCS-01-1 100 mL
LPCS-01-5 500 mL

29 components in 5% HNO_3 tr. HF

Element	µg/mL	λ (nm)
Al *(Aluminum)*	20	308.215
Sb *(Antimony)*	20	206.833
As *(Arsenic)*	20	193.696
Ba *(Barium)*	20	493.409
Be *(Beryllium)*	20	313.042
B *(Boron)*	20	249.678
Cd *(Cadmium)*	20	226.502
Ca *(Calcium)*	20	315.887
Cr *(Chromium)*	20	205.552
Co *(Cobalt)*	20	228.616
Cu *(Copper)*	20	324.754
Fe *(Iron)*	20	259.940
Pb *(Lead)*	20	220.353
Li *(Lithium)*	20	670.784
Mg *(Magnesium)*	20	279.079
Mn *(Manganese)*	20	257.610
Mo *(Molybdenum)*	20	203.844
Ni *(Nickel)*	20	231.604
P *(Phosphorus)*	100	214.914
K *(Potassium)*	100	766.491
Se *(Selenium)*	20	196.090
Si *(Silicon)* †	100	251.611
Ag *(Silver)*	5	328.068
Na *(Sodium)*	20	588.995
Sr *(Strontium)*	20	421.552
Tl *(Thallium)*	20	190.864
Sn *(Tin)*	20	189.980
V *(Vanadium)*	20	292.402
Zn *(Zinc)*	20	213.856

† 214 µg/mL as SiO_2

Laboratory Fortifying Stock Solution

For use in preparing the laboratory fortified blank and the laboratory fortified sample matrix.

LFSS-01-1 100 mL
LFSS-01-5 500 mL

25 components in 5% HNO_3 tr. HF

Element	µg/mL	λ (nm)
Al *(Aluminum)*	25	308.215
Sb *(Antimony)*	25	206.833
As *(Arsenic)*	25	193.696
Ba *(Barium)*	25	493.409
Be *(Beryllium)*	5	313.042
B *(Boron)*	25	249.678
Cd *(Cadmium)*	10	226.502
Cr *(Chromium)*	25	205.552
Co *(Cobalt)*	10	228.616
Cu *(Copper)*	25	324.754
Fe *(Iron)*	25	259.940
Pb *(Lead)*	25	220.353
Li *(Lithium)*	25	670.784
Mn *(Manganese)*	25	257.610
Mo *(Molybdenum)*	10	203.844
Ni *(Nickel)*	25	231.604
P *(Phosphorus)*	50	214.914
Se *(Selenium)*	25	196.090
Si *(Silicon)* †	25	251.611
Ag *(Silver)*	2.5	328.068
Sr *(Strontium)*	25	421.552
Tl *(Thallium)*	25	190.864
Sn *(Tin)*	10	189.980
V *(Vanadium)*	10	292.402
Zn *(Zinc)*	25	213.856

† 53.5 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to incompatibility with other elements.

TCLP-02-1 100 mL
TCLP-02-5 500 mL

1 component in 5% HNO_3

Element	µg/mL	λ (nm)
Hg *(Mercury)*	20	194.227

Technical Note

The analytes Ca, K, Mg, and Na are not included in the stock solution because their concentrations vary widely in environmental samples.

Method 200.7 (Revision 4.4, May 1994) Calibration Standards

Mixed Calibration Standard #1

M-200.7-01-1 100 mL
M-200.7-01-5 500 mL

10 components in 5% HNO_3

Element	µg/mL	λ (nm)
Sb *(Antimony)*	50	206.833
As *(Arsenic)*	100	193.696
Ba *(Barium)*	10	493.409
B *(Boron)*	20	249.678
Cd *(Cadmium)*	20	226.502
Ca *(Calcium)*	100	315.887
Cu *(Copper)*	20	324.754
Mn *(Manganese)*	20	257.610
Se *(Selenium)*	50	196.090
Ag *(Silver)*	5	328.068

Mixed Calibration Standard #2

M-200.7-02R-1 100 mL
M-200.7-02R-5 500 mL

6 components in 5% HNO_3

Element	µg/mL	λ (nm)
Li *(Lithium)*	50	670.784
Mo *(Molybdenum)*	100	203.844
K *(Potassium)*	200	766.491
Na *(Sodium)*	100	588.995
Sr *(Strontium)*	10	421.552
Ti *(Titanium)*	100	334.941

Mixed Calibration Standard #3

M-200.7-03R-1 100 mL
M-200.7-03R-5 500 mL

4 components in 5% HNO_3

Element	µg/mL	λ (nm)
Ce *(Cerium)*	20	413.765
Co *(Cobalt)*	20	228.616
P *(Phosphorus)*	100	214.914
V *(Vanadium)*	20	292.402

Mixed Calibration Standard #4

M-200.7-04-1 100 mL
M-200.7-04-5 500 mL

5 components in 5% HNO_3 tr. HF

Element	µg/mL	λ (nm)
Al *(Aluminum)*	100	308.215
Cr *(Chromium)*	50	205.552
Si *(Silicon)* †	100	251.611
Sn *(Tin)*	40	189.980
Zn *(Zinc)*	50	213.856

† 214 µg/mL as SiO_2

Mixed Calibration Standard #5

M-200.7-05-1 100 mL
M-200.7-05-5 500 mL

6 components in 5% HNO_3

Element	µg/mL	λ (nm)
Be *(Beryllium)*	10	313.042
Fe *(Iron)*	100	259.940
Pb *(Lead)*	100	220.353
Mg *(Magnesium)*	100	279.553
Ni *(Nickel)*	20	231.604
Tl *(Thallium)*	50	190.864

Mixed Calibration Standards Sets

M-200.7-1-R-SET 5 x 100 mL

M-200.7-01-1
M-200.7-02R-1
M-200.7-03R-1
M-200.7-04-1
M-200.7-05-1

M-200.7-5-R-SET 5 x 500 mL

M-200.7-01-5
M-200.7-02R-5
M-200.7-03-5R
M-200.7-04-5
M-200.7-05-5

ICP Method 200.7
(Revision 4.4, May 1994)

Method 200.7 Fortifying (Spiking & Instrument Performance Standards)

These Standards have been split for stability and ease of use. Chose the Instrument Fortifying Standard you require for Part 1 & use with Part 2 to complete the analyte list. For Lab Fortified Blank use M-200.7-LFSS-01, for Water Samples use M-200.7-LFSS-01W, and for Solid Samples use M-200.7-LFSS-01S.

Part 1

Instrument Fortifying Standard

M-200.7-LFSS-01-1 100 mL
M-200.7-LFSS-01-5 500 mL
26 components in 5% HNO_3

Element	µg/mL	λ (nm)
Al *(Aluminum)*	20	309.271
As *(Arsenic)*	20	193.696
Ba *(Barium)*	20	455.403
Be *(Beryllium)*	20	313.042
B *(Boron)*	20	249.773
Cd *(Cadmium)*	20	226.502
Ca *(Calcium)*	20	315.887
Ce *(Cerium)*	20	413.765
Cr *(Chromium)*	20	205.552
Co *(Cobalt)*	20	238.892
Cu *(Copper)*	20	324.754
Fe *(Iron)*	20	238.204
Pb *(Lead)*	20	220.353
Li *(Lithium)*	20	670.786
Mg *(Magnesium)*	20	279.553
Mn *(Manganese)*	20	257.610
Ni *(Nickel)*	20	231.604
P *(Phosphorus)*	20	213.618
K *(Potassium)*	500	766.461
Se *(Selenium)*	20	196.026
Ag *(Silver)*	7.5	328.068
Na *(Sodium)*	20	589.995
Sr *(Strontium)*	20	407.771
Tl *(Thallium)*	20	190.864
V *(Vanadium)*	20	292.402
Zn *(Zinc)*	20	213.856

Instrument Fortifying Standard for Water

M-200.7-LFSS-01W-1 100 mL
M-200.7-LFSS-01W-5 500 mL
22 components in 5% HNO_3

Element	µg/mL	λ (nm)
Al *(Aluminum)*	20	309.271
As *(Arsenic)*	20	193.696
Ba *(Barium)*	20	455.403
Be *(Beryllium)*	20	313.042
B *(Boron)*	20	249.773
Cd *(Cadmium)*	20	226.502
Ce *(Cerium)*	20	413.765
Cr *(Chromium)*	20	205.552
Co *(Cobalt)*	20	238.892
Cu *(Copper)*	20	324.754
Fe *(Iron)*	20	238.204
Pb *(Lead)*	20	220.353
Li *(Lithium)*	20	670.786
Mn *(Manganese)*	20	257.610
Ni *(Nickel)*	20	231.604
P *(Phosphorus)*	20	213.618
K *(Potassium)*	500	766.461
Se *(Selenium)*	20	196.026
Ag *(Silver)*	7.5	328.068
Tl *(Thallium)*	20	190.864
V *(Vanadium)*	20	292.402
Zn *(Zinc)*	20	213.856

Instrument Fortifying Standard for Solids

M-200.7-LFSS-01S-1 100 mL
M-200.7-LFSS-01S-5 500 mL
24 components in 5% HNO_3

Element	µg/mL	λ (nm)
As *(Arsenic)*	20	193.696
Ba *(Barium)*	20	455.403
Be *(Beryllium)*	20	313.042
B *(Boron)*	20	249.773
Cd *(Cadmium)*	20	226.502
Ca *(Calcium)*	20	315.887
Ce *(Cerium)*	20	413.765
Cr *(Chromium)*	20	205.552
Co *(Cobalt)*	20	238.892
Cu *(Copper)*	20	324.754
Pb *(Lead)*	20	220.353
Li *(Lithium)*	20	670.786
Mg *(Magnesium)*	20	279.553
Mn *(Manganese)*	20	257.610
Ni *(Nickel)*	20	231.604
P *(Phosphorus)*	20	213.618
K *(Potassium)*	500	766.461
Se *(Selenium)*	20	196.026
Ag *(Silver)*	7.5	328.068
Na *(Sodium)*	20	589.995
Sr *(Strontium)*	20	407.771
Tl *(Thallium)*	20	190.864
V *(Vanadium)*	20	292.402
Zn *(Zinc)*	20	213.856

Part 2

Instrument Fortifying Standard #2

M-200.7-LFSS-02-1 100 mL
M-200.7-LFSS-02-5 500 mL
5 components in 5% HNO_3 tr. HF

Element	µg/mL	λ (nm)
Sb *(Antimony)*	20	217.581
Mo *(Molybdenum)*	20	202.030
Si *(Silicon)* †	20	251.611
Sn *(Tin)*	20	189.980
Ti *(Titanium)*	20	334.941

† 42.78 µg/mL as SiO_2

Instrument Performance Standards

Instrument Performance Check Standard #1

M-200.7-IPC-01-1 100 mL
M-200.7-IPC-01-5 500 mL
26 components in 5% HNO_3

Element	µg/mL	λ (nm)
Al (Aluminum)	20	308.215
As (Arsenic)	20	193.696
Ba (Barium)	20	493.409
Be (Beryllium)	20	313.042
B (Boron)	20	249.678
Cd (Cadmium)	20	226.502
Ca (Calcium)	20	315.887
Ce (Cerium)	20	413.765
Cr (Chromium)	20	205.552
Co (Cobalt)	20	228.616
Cu (Copper)	20	324.754
Fe (Iron)	20	259.940
Pb (Lead)	20	220.353
Li (Lithium)	20	670.786
Mg (Magnesium)	20	279.553
Mn (Manganese)	20	257.610
Ni (Nickel)	20	231.604
P (Phosphorus)	100	213.618
K (Potassium)	100	766.461
Se (Selenium)	20	196.026
Ag (Silver)	2.5	328.068
Na (Sodium)	20	589.995
Sr (Strontium)	20	407.771
Tl (Thallium)	20	190.864
V (Vanadium)	20	292.402
Zn (Zinc)	20	213.856

Instrument Performance Check Standard #2

M-200.7-IPC-02-1 100 mL
M-200.7-IPC-02-5 500 mL
5 components in 5% HNO_3 tr. HF

Element	µg/mL	λ (nm)
Sb (Antimony)	20	217.581
Mo (Molybdenum)	20	202.030
Si (Silicon) †	100	251.611
Sn (Tin)	20	189.980
Ti (Titanium)	20	334.941

† 214 µg/mL as SiO_2

These products require a Hazardous Shipping Fee except products marked with an asterisk *

LFSS-01-1:35
LFSS-01-5:35
LPCS-01-1:35
LPCS-01-5:35
M-200.7-01-1:35
M-200.7-01-5:35
M-200.7-02R-1:35
M-200.7-02R-5:35
M-200.7-03R-1:35
M-200.7-03R-5:35
M-200.7-04-1:35
M-200.7-04-5:35
M-200.7-05-1:35
M-200.7-05-5:35
M-200.7-1-R-SET:35
M-200.7-5-R-SET:35
M-200.7-IPC-01-1:36
M-200.7-IPC-01-5:36
M-200.7-IPC-02-1:36
M-200.7-IPC-02-5:36
M-200.7-LFSS-01-1:36
M-200.7-LFSS-01-5:36
M-200.7-LFSS-01S-1:36
M-200.7-LFSS-01S-5:36
M-200.7-LFSS-01W-1:36
M-200.7-LFSS-01W-5:36
M-200.7-LFSS-02-1:36
M-200.7-LFSS-02-5:36
M-200.7-SP-01-R:33
M-200.7-SP-02-R:33
M-200.7-SP-02-R-1:33
M-200.7-SP-02-R-5:33
M-200.7-SP-03:33
M-200.7-SP-04-R:33
M-200.7-SP-05-R:33
M-200.7-SP-R-SET:33
MCS-01-1:33
MCS-01-5:33
MCS-02-1:33
MCS-02-5:33
MCS-03-1:33
MCS-03-5:33
MCS-04-1:33
MCS-04-5:33
MCS-05-1:33
MCS-05-5:33
MCS-1986-1-SET:33
MCS-1986-5-SET:33
SIC-1-SET:34
SIC-5-SET:34
SIC-SING-1-SET:34
SICS-01-1:34
SICS-01-5:34
SICS-02-1:34
SICS-02-5:34
SICS-03-1:34
SICS-03-5:34
TCLP-02-1:35
TCLP-02-5:35