

# Product Specification

**Anion Standard Set, 1000 ppm: F<sup>-</sup>, Cl<sup>-</sup>, Br<sup>-</sup>, NO<sub>2</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, and SO<sub>4</sub><sup>2-</sup>**

**Lot Number:** SAMPLE

**Product Number:** 754

**Manufacture Date:** N/A

**Expiration Date:** N/A

Kit Component Part Number	Kit Component Lot Number	Kit Component Product Name
1180	SAMPLE	Bromide Standard, 1000 ppm Br <sup>-</sup>
1955	SAMPLE	Chloride Standard, 1000 ppm Cl <sup>-</sup> (0.0282 Normal)
3173	SAMPLE	Fluoride Standard, 1000 ppm F <sup>-</sup>
5307	SAMPLE	Nitrate Standard, 1000 ppm NO <sub>3</sub> <sup>-</sup> (226 ppm N)
5445	SAMPLE	Nitrite Standard, 1000 ppm NO <sub>2</sub> <sup>-</sup> (304.5 ppm N)
5839	SAMPLE	Phosphate Standard, 1000 ppm PO <sub>4</sub> <sup>3-</sup> (326 ppm P)
8112	SAMPLE	Sulfate Standard, 1000 ppm SO <sub>4</sub> <sup>2-</sup>

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
754-7PK	1 Ea.	12 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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# Product Specification

## Bromide Standard, 1000 ppm Br<sup>-</sup>

**Lot Number:** SAMPLE

**Product Number:** 1180

**Manufacture Date:** N/A

**Expiration Date:** N/A

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Bromide	7647-15-6	High Purity

Test	Specification	Result
Appearance	Colorless liquid	N/A
Bromide (Br)	995-1005 ppm	N/A

Specification	Reference
Bromide Solution, Standard (1 mL = 1 mg Br <sup>-</sup> )	ASTM (D 3869 D)
Standard Bromide Solution, 1000 mg/L	APHA (4110 B)
Bromide Stock Solution (1.00 mL = 1.00 mg Br <sup>-</sup> )	EPA (SW-846) (9056)
Sodium Bromide Standard Solution, 1000 mg/L	ASTM (D 1246)
Bromide Stock Solution (1.00 mL = 1.00 mg Br <sup>-</sup> )	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1180-16	500 mL natural poly	18 months
1180-4	120 mL natural poly	18 months
1180-8	250 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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# Product Specification

## Chloride Standard, 1000 ppm Cl<sup>-</sup> (0.0282 Normal)

**Lot Number:** SAMPLE

**Product Number:** 1955

**Manufacture Date:** N/A

**Expiration Date:** N/A

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Chloride	7647-14-5	ACS

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	N/A	
Assay (vs. Silver Nitrate/Potassium Chromate)	999-1001 ppm Cl <sup>-</sup>	N/A	999

Specification	Reference
Chloride Solution Stock (1.00 mL = 1.00 mg chloride)	ASTM (D 5542)
Chloride Solution, Stock (1000 mg/L)	ASTM (D 512 C)
Standard Chloride Solution, 1000 mg/L	APHA (4110 B)
Stock Chloride Solution	APHA (4500-Cl- E)
Sodium Chloride Calibration Standard (1 µg Cl <sup>-</sup> /µL)	EPA (SW-846) (9023)
Sodium Chloride Calibration Standard (1 µg Cl <sup>-</sup> /µL)	EPA (SW-846) (9021)
Chloride Stock Solution (1.00 mL = 1.00 mg Cl <sup>-</sup> )	EPA (SW-846) (9056)
Sodium Chloride, NaCl, stock standard solution	EPA (SW-846) (9057)
Chloride Calibration Stock Solution (1,000 mg/L Cl <sup>-</sup> )	EPA (SW-846) (9212)
Chloride solution (1000 ppm)	TAPPI (T 700 om-93)
Chloride solution (1000 ppm)	TAPPI (T 699 om-87)
Sodium Chloride Solution, 1 mL = 1 mg Cl <sup>-</sup>	ASTM (D 4458)
Chloride Stock Solution (1.00 mL = 1.00 mg Cl <sup>-</sup> )	ASTM (D 4327)
Chloride Solution, Stock (1.00 mL = 1.00 mg Cl <sup>-</sup> )	ASTM (D 5996)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
1955-1	4 L natural poly	24 months
1955-16	500 mL natural poly	24 months
1955-32	1 L natural poly	24 months
1955-4	120 mL natural poly	24 months
1955-5	20 L Cubitainer®	24 months
1955-8	250 mL natural poly	24 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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# Product Specification

## Fluoride Standard, 1000 ppm F<sup>-</sup>

**Lot Number:** SAMPLE

**Product Number:** 3173

**Manufacture Date:** N/A

**Expiration Date:** N/A

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.  
The concentration is confirmed by Fluoride ISE and is certified traceable to NIST SRM 2203.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Fluoride	7681-49-4	High Purity

Test	Specification	Result
Appearance	Colorless liquid	N/A
Fluoride (F)	995-1005 ppm	N/A

Specification	Reference
Fluoride Solution, Stock (1.00 mL = 1.00 mg F)	ASTM (D 5542)
Fluoride Stock Solution (1.00 mL = 1.00 mg F)	EPA (SW-846) (9056)
Fluoride Calibration Stock Solution (1,000 mg/L F)	EPA (SW-846) (9214)
Stock Solution, 1.0 mL = 1.0 mg F	EPA (340.3)
Fluoride Solution, Stock (1.00 mL = 1.00 mg F)	ASTM (D 5996)
Fluoride Stock Solution (1.00 mL = 1.00 mg F)	ASTM (D 4327)
Fluoride Stock Standard Solution (1 mg of F in 1 mL)	ACS (N/A)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
3173-1	4 L natural poly	18 months
3173-16	500 mL natural poly	18 months
3173-32	1 L natural poly	18 months
3173-4	120 mL natural poly	18 months
3173-8	250 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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# Product Specification

## Nitrate Standard, 1000 ppm NO<sub>3</sub><sup>-</sup> (226 ppm N)

**Lot Number:** SAMPLE

**Product Number:** 5307

**Manufacture Date:** N/A

**Expiration Date:** N/A

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Nitrate	7757-79-1	High Purity

Test	Specification	Result
Appearance	Colorless liquid	N/A
Nitrate (NO <sub>3</sub> <sup>-</sup> )	995-1005 ppm	N/A

Specification	Reference
Nitrate Calibration Stock Solution (1,000 mg/L)	EPA (SW-846) (9210)
Nitrate Stock Solution (1.00 mL = 1.00 mg NO <sub>3</sub> <sup>-</sup> )	EPA (SW-846) (9056)
Nitrate Solution, Stock (1.00 mL = 1.00 mg NO <sub>3</sub> <sup>-</sup> )	ASTM (D 5996)
Nitrate Stock Solution (1.00 mL = 1.00 mg NO <sub>3</sub> <sup>-</sup> )	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
5307-16	500 mL natural poly	18 months
5307-32	1 L natural poly	18 months
5307-4	120 mL natural poly	18 months
5307-5	20 L Cubitainer®	12 months
5307-8	250 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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# Product Specification

**Nitrite Standard, 1000 ppm NO<sub>2</sub><sup>-</sup> (304.5 ppm N)**

**Lot Number:** SAMPLE

**Product Number:** 5445

**Manufacture Date:** N/A

**Expiration Date:** N/A

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Nitrite	7632-00-0	ACS
Chloroform	67-66-3	

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	N/A	
Assay (vs. Potassium Permanganate)	996.7-1003.3 ppm NO <sub>2</sub>	N/A	8040

Specification	Reference
Standard Nitrite Solution, 1000 mg/L	APHA (4110 B)
Nitrite Stock Solution (1.00 mL = 1.00 mg NO <sub>2</sub> <sup>-</sup> )	EPA (SW-846) (9056)
Nitrite Stock Solution (1.00 mL = 1.00 mg NO <sub>2</sub> <sup>-</sup> )	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
5445-16	500 mL natural poly	12 months
5445-4	120 mL natural poly	12 months
5445-8	250 mL natural poly	12 months

**Recommended Storage:** 2°C - 8°C (36°F - 46°F)

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# Product Specification

## Phosphate Standard, 1000 ppm PO<sub>4</sub><sup>3-</sup> (326 ppm P)

**Lot Number:** SAMPLE

**Product Number:** 5839

**Manufacture Date:** N/A

**Expiration Date:** N/A

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Dihydrogen Phosphate	7778-77-0	High Purity

Test	Specification	Result
Appearance	Colorless liquid	N/A
Phosphate (PO <sub>4</sub> )	995-1005 ppm	N/A

Specification	Reference
Phosphate Solution stock (1.00 mL = 1.00 mg PO <sub>4</sub> )	ASTM (D 5542)
Standard Phosphate Solution, 1000 mg/L	APHA (4110 B)
Phosphate Stock Solution (1.00 mL = 1.00 mg PO <sub>4</sub> <sup>3-</sup> )	EPA (SW-846) (9056)
Phosphate Solution, Stock (1.00 mL = 1.00 mg PO <sub>4</sub> )	ASTM (D 5996)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
5839-16	500 mL natural poly	18 months
5839-32	1 L natural poly	18 months
5839-4	120 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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# Product Specification

## Sulfate Standard, 1000 ppm SO<sub>4</sub><sup>2-</sup>

**Lot Number:** SAMPLE

**Product Number:** 8112

**Manufacture Date:** N/A

**Expiration Date:** N/A

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	N/A
Sulfate (SO <sub>4</sub> )	995-1005 ppm	N/A

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO <sub>4</sub> )	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO <sub>4</sub>	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO <sub>4</sub> <sup>2-</sup> )	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO <sub>4</sub> <sup>2-</sup>	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO <sub>4</sub> )	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO <sub>4</sub> <sup>2-</sup> )	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-32	1 L natural poly	18 months
8112-4	120 mL natural poly	18 months
8112-8	250 mL natural poly	18 months
R8112000-F500A	500 mL natural poly	18 months

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)

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