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**Parameters:**

- Ammonia
- Ammonium
- Bromide
- Cadmium
- Calcium
- Chloride
- Copper
- Cyanide
- Fluoride
- Iodide
- Lead
- Nitrate
- Potassium
- Silver/Sulfide
- Sodium



**YSI TruLine Ion Selective Electrodes**

**Accurate measurement of effective ion concentration in the lab**

Measuring effective ion concentration with ion selective electrodes (ISEs) is important in applications such as wastewater, drinking water, environmental testing, and the food/beverage industry. The TruLine series of combination ISEs is designed to meet the most demanding challenges of determining effective ion concentration in the laboratory setting. The TruLine ISEs can be connected to the YSI TruLab 1320(P), the YSI MultiLab 4010-2 (with BNC adapter), the YSI MultiLab 4010-3 (with BNC adapter), and other ISE instruments that feature BNC connection. The TruLine ISEs are refillable and feature a built-in double-junction reference system, allowing for a long electrode life and optimum performance in the lab.

- Wide selection of 15 electrodes for 16 different parameters
- 4 sensor technologies - gas sensing, polymer/PVC membrane, solid state, glass sensor
- Combination (i.e. full-cell), refillable electrodes with double-junction reference\*
- BNC connection, 3 foot cable
- Made in the U.S.A
- Reference/electrode fill solution, ionic strength adjustor, and small bottle of standard\*\* included with each ISE
- 12 month warranty for solid state, glass sensor, and gas-sensing ISEs; 9 month warranty for ISEs with polymer/PVC membrane



**TruLine Family of Ion Selective Electrodes**

\*The ammonia ISE is not a true double-junction electrode, but it does contain a single-junction pH electrode inside an outer membrane that only ammonia can permeate.

\*\*Cyanide and sulfide standards not included with respective kits.

## YSI TruLine ISE Specifications

Parameter	Item #	Tech-nology	Features	Range	Slope	pH Range	Interfer-ences	Applications/ Notes
Ammonia (NH <sub>3</sub> )*	400365	Gas-sensing	Replaceable/refillable membrane modules (1 replacement included), pH sensor inside	0.02 to 17,000 mg/L	54 to 59 mV/decade	ISA buffers sample to >pH 11 to make NH <sub>3</sub> gaseous	Few, volatile amines	Wastewater, aquaculture, agriculture, industrial. pH shift caused by ammonia gas is correlated to conc.
Ammonium (NH <sub>4</sub> <sup>+</sup> )	400371	Polymer/PVC membrane	Refillable reference, replaceable sensor modules (1 replacement included)	0.02 to 1,800 mg/L	54 to 59 mV/decade	4 to 10	Few, Na <sup>+</sup> , K <sup>+</sup>	Wastewater, environmental, industrial, food/beverage
Bromide (Br)	400377	Solid state	Refillable reference, non-replaceable sensor	0.4 to 79,900 mg/L	54 to 59 mV/decade	<12	I <sup>-</sup> , Cl <sup>-</sup> , CN <sup>-</sup> , NH <sub>3</sub> <sup>-</sup>	Pool, spa, industrial, wastewater
Cadmium (Cd <sup>2+</sup> )	400382	Solid state	Refillable reference, non-replaceable sensor	0.1 to 11,200 mg/L	26 to 29 mV/decade	2 to 8	Hg <sup>2+</sup> , Ag <sup>+</sup> , Cu <sup>2+</sup> , Pb <sup>2+</sup>	Industrial, environmental
Calcium (Ca <sup>2+</sup> )	400387	Polymer/PVC membrane	Refillable reference, replaceable sensor modules (1 replacement included)	0.02 to 40,000 mg/L	25 to 29 mV/decade	2.5 to 11	Pb <sup>2+</sup> , Hg <sup>2+</sup> , Si <sup>2+</sup> , Mg <sup>2+</sup> , Cu <sup>2+</sup> , K <sup>+</sup> , Tris <sup>+</sup> , Na <sup>+</sup> , others	Aquariums, industrial, food/beverage
Chloride (Cl)	400393	Solid state	Refillable, reference non-replaceable sensor	1.8 to 35,500 mg/L	54 to 59 mV/decade	2 to 12	CN <sup>-</sup> , Br <sup>-</sup> , I <sup>-</sup> , OH <sup>-</sup> , S <sup>2-</sup> , NH <sub>3</sub>	Industrial, wastewater, drinking water, food/beverage, environmental. Store in dark when not in use.
Copper (Cu <sup>2+</sup> )	400445	Solid state	Refillable reference, non-replaceable sensor	0.06 to 6,400 mg/L	26 to 20 mV/decade	2 to 6	Hg <sup>2+</sup> , Ag <sup>+</sup> , Fe <sup>2+</sup> , Br <sup>-</sup> , Cl <sup>-</sup>	Industrial, environmental. Also known as Cupric ISE.
Cyanide (CN) <sup>**</sup>	400403	Solid state	Refillable reference, non-replaceable sensor	0.2 to 260 mg/L	54 to 59 mV/decade	10 to 14	I <sup>-</sup> , Br <sup>-</sup> , Cl <sup>-</sup> , S <sup>2-</sup>	Industrial, environmental
Fluoride (F)	400406	Solid state crystal	Refillable reference, non-replaceable sensor	0.02 mg/L - saturation	54 to 59 mV/decade	5 to 7 at low range, 11 at higher range	OH <sup>-</sup>	Drinking water, industrial. Lanthanum fluoride crystal is the sensor.
Iodide (I)	400411	Solid state	Refillable reference, non-replaceable sensor	0.006 to 127,000 mg/L	54 to 59 mV/decade	<14	CN <sup>-</sup> , Cl <sup>-</sup> , S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> , S <sup>2-</sup> , NH <sub>3</sub>	Drinking water, industrial, food/beverage
Lead (Pb <sup>2+</sup> )	400416	Solid state	Refillable reference, non-replaceable sensor	0.02 to 20,700 mg/L	26 to 29 mV/decade	4 to 7	Hg <sup>2+</sup> , Ag <sup>+</sup> , Cu <sup>2+</sup> , Fe <sup>2+</sup> , Cd <sup>2+</sup>	Industrial, environmental
Nitrate (NO <sub>3</sub> <sup>-</sup> )	400421	Polymer/PVC membrane	Refillable reference, replaceable sensor modules (1 replacement included)	0.4 to 62,000 mg/L	54 to 59 mV/decade	2.5 to 11	Few, ClO <sub>4</sub> <sup>-</sup> , ClO <sub>3</sub> <sup>-</sup> , I <sup>-</sup> , F <sup>-</sup>	Environmental, industrial, agriculture, food/beverage
Potassium (K <sup>+</sup> )	400427	Polymer/PVC membrane	Refillable reference, replaceable sensor modules (1 replacement included)	0.04 to 39,000 mg/L	54 to 59 mV/decade	2 to 12	Cs <sup>+</sup> , NH <sub>4</sub> <sup>+</sup> , Tl <sup>+</sup> , H <sup>+</sup> , Ag <sup>+</sup> , Tris <sup>+</sup> , Na <sup>+</sup> , Li <sup>+</sup>	Agriculture, food/beverage, environmental, industrial
Silver/Sulfide (Ag <sup>+</sup> /S <sup>2-</sup> ) <sup>**</sup>	400433	Solid state	Refillable reference, non-replaceable sensor	0.01 to 107,900 mg/L (Silver); 0.003 to 32,100 mg/L (Sulfide)	54 to 59 mV/decade (Silver); 26 to 29 mV/decade (Sulfide)	2 to 12	Hg <sup>2+</sup>	Industrial, environmental, food/beverage
Sodium (Na <sup>+</sup> )	400439	Glass sensor	Refillable reference, non-replaceable sensor	0.1 to 23,000 mg/L	54 to 59 mV/decade	>9	H <sup>+</sup> , K <sup>+</sup>	Industrial, agriculture, power, food/beverage

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### YSI

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