

LAQUA



pH	ORP	Ion	Conductivity
Resistivity	Total Dissolved Solids	Dissolved Oxygen	Salinity

ELECTRODES



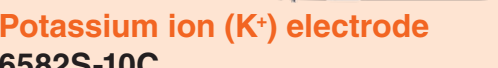
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Combination ISE

Ion-selective electrodes are responsive to concentration of particular ions in the test liquid and are variable-potential electrodes. They are used in conjunction with reference electrodes to measure the concentration of particular ions. HORIBA's years of experience and know-how in this field are behind the wide range of ion electrodes we offer.

When measurements are made using an ion meter, calibrating it with various standard solutions will give direct readings of the ion concentration. Note that since volume-detection level changes with temperature, measurements must be taken at a fixed temperature.

Model	Accessories Included	Temp. Range (°C)	Measurement Range	pH Range
 Ammonia ion (NH₃) electrode 5002S-10C 3200698386 Overall length: 161 mm Diameter of probe: 15 mm Connector: BNC	• membrane cap, 3pcs • 1000mg/L ammonium ion standard solution, 50ml • 100mg/L ammonium ion standard solution, 50ml • ammonia electrode filling solution, 50ml • syringe • dropper • protective pipe • manual	0 - 50	0.01 - 18,000 mg/L NH ₄ ⁺ (5 x 10 ⁻⁷ to 1 mol/L NH ₄ ⁺)	pH 12 or more
 Calcium ion (Ca²⁺) electrode 6583S-10C 3200697410 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC	• calcium electrode tip, 2pcs • 1000mg/L calcium ion standard solution, 50ml • 100mg/L calcium ion standard solution, 50ml • calcium electrode filling solution, 50ml • calcium ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual	0 - 50	0.4 - 40,080 mg/L Ca ²⁺ (10 ⁻⁵ to 1 mol/L Ca ²⁺)	4.0 mg/L (10 ⁻⁴ mol/L) Ca ²⁺ , pH 5 to 11
 Chloride ion (Cl⁻) electrode 6560S-10C 3200697407 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC	• chloride electrode tip • 1000mg/L chloride ion standard solution, 50ml • 100mg/L chloride ion standard solution, 50ml • chloride electrode filling solution, 50ml • chloride ionic strength adjustor, 50ml • syringe • dropper • protective pipe • water-resistant abrasive sheet • manual	0 - 50	0.35 - 35,000 mg/L Cl ⁻ (10 ⁻⁵ to 1 mol/L Cl ⁻)	350 mg/L (10 ⁻² mol/L) Cl ⁻ , pH 3 to 11
 Fluoride ion (F⁻) electrode 6561S-10C 3200693774 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC	• fluoride electrode tip • 1000mg/L fluoride ion standard solution, 50ml • 100mg/L fluoride ion standard solution, 50ml • fluoride electrode filling solution, 50ml • fluoride ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual	0 - 50	0.02 - 19,000 mg/L F ⁻ (10 ⁻⁶ to 1 mol/L F ⁻)	0.1 to 1,000 mg/L F ⁻ , pH 5 to 8
 Nitrate ion (NO₃⁻) electrode 6581S-10C 3200697408 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC	• nitrate electrode tip, 2pcs • 1000mg/L nitrate ion standard solution, 50ml • 100mg/L nitrate ion standard solution, 50ml • nitrate electrode filling solution, 50ml • nitrate ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual	0 - 50	0.62 - 62,000 mg/L NO ₃ ⁻ (10 ⁻⁵ to 1 mol/L NO ₃ ⁻)	62 mg/L (10 ⁻³ mol/L) NO ₃ ⁻ , pH 3 to 7
 Potassium ion (K⁺) electrode 6582S-10C 3200697409 Overall length: 150 mm Diameter of probe: 16 mm Connector: BNC	• potassium electrode tip, 2pcs • 1000mg/L potassium ion standard solution, 50ml • 100mg/L potassium ion standard solution, 50ml • potassium electrode filling solution, 50ml • potassium ionic strength adjustor, 50ml • syringe • dropper • protective pipe • manual	0 - 50	0.39 - 39,000 mg/L K ⁺ (10 ⁻⁵ to 1 mol/L K ⁺)	3.9 mg/L (10 ⁻⁴ mol/L) K ⁺ , pH 5 to 11



Selection Coefficient	Replacement Tip	Electrode Filling Solution	100mg/L Standard Solution	1000mg/L Standard Solution	Ionic Strength Adjustor	Applications
—	 NH₃ electrode membrane caps 3200705774	500-NH3-IFS 3200697173	500-NH4-SL 3200697172	500-NH4-SH 3200697171	500-NH3-ISA 3200697174 	Agriculture, Soil, Power Station Water, Fish Tanks, Sea Water, Waste Water, Plating Baths, Air / Stack Gases and Biological Cultures or Samples
$\text{Fe}^{3+} = 0.1$, Fe^{2+} , $\text{Zn}^{2+} = 1$, $\text{Sr}^{2+} = 50$ Ni^{2+} , $\text{Cu}^{2+} = 70$, $\text{Co}^{2+} = 350$ $\text{Mn}^{2+} = 500$, $\text{Mg}^{2+} = 1,000$ Na^+ , K^+ , Ba^{2+} , $\text{NH}_4^+ = \text{over } 1,000$	 7683S 3200697414	500-CA-IFS 3200697177	500-CA-SL 3200697176	500-CA-SH 3200697175	500-CA-ISA 3200697178	Agriculture / Plant Tissue, Soil, Water Softening Systems, Boiler Feed Water, Drinking / Mineral Water, Biological Cultures, Dental / Clinical Analysis and Dairy / Food / Beverages Applications
$\text{S}_2\text{O}_3^{2-}$, S^{2-} , I^- , Ag^+ , $\text{Hg}^{2+} = \text{Not acceptable}$ $\text{SCN}^- = 0.3$, $\text{MnO}_4^- = 0.1$ $\text{Br}^- = 0.03$ NO_3^- , F^- , HCO_3^- , SO_4^{2-} , $\text{PO}_4^{2-} = 1,000$	 7660S 3200697411	500-CL-IFS 3200697169	500-CL-SL 3200697168	500-CL-SH 3200697167	500-CL-ISA 3200697170	Agriculture, River / Tap Water, Plant Tissue, Soils, Boiler Feed Water, Clinical Analysis, Sweat, Urine, Cement, Plating Baths and Dairy / Food / Beverages Samples
Possible interference when multiply-charged ion (ex. Al^{3+} , Fe^{3+}) coexisted and foamed the complex.	 7661S 3200693606	500-F-IFS 3200697165	500-F-SL 3200697164	500-F-SH 3200697163	500-F-TISAB 3200697166	Dental / Toothpaste / Mouth Wash, Drinking / Seawater, Wastewater, Air / Stack Gases, Acids, Soils, Food, Biological Fluids, Plant Tissue, Coal, Carbonated Beverages and Bone
ClO_4^- , $\text{I}^- = \text{Not acceptable}$, $\text{Br}^- = 2$ $\text{NO}_2^- = 3$, $\text{Cl}^- = 300$ HCO_3^- , H_2PO_4^- , $\text{SO}_4^{2-} = \text{over } 1000$	 7681S 3200697412	500-NO3-IFS 3200697181	500-NO3-SL 3200697180	500-NO3-SH 3200697179	500-NO3-ISA 3200697182	Agriculture / Plant Tissue / Fertilizers, Surface / Seawater / Drinking Water, Sewage Effluent, Soils, Meats, Vegetables, Foods / Beverages
$\text{Rb}^+ = 0.4$, $\text{Cs}^+ = 3$, $\text{NH}_4^+ = 70$ Li^+ , Na^+ , Mg^{2+} , Ca^{2+} , Sr^{2+} , $\text{Ba}^{2+} = \text{over } 1,000$	 7682S 3200697413	500-K-IFS 3200697185	500-K-SL 3200697184	500-K-SH 3200697183	500-K-ISA 3200697186	Agriculture / Plant Tissue, Soils, Wastewater, River / Tap Water, Clinical Analysis, Saliva, Serum, Fertilizers, Soils and Wines, Dairy / Foods / Beverages

Note: Detailed information on standard solutions, ISAs, and filling solutions can be found on page 14