



















## Thermo Scientific Orion Ion Selective Electrode Selection Guide

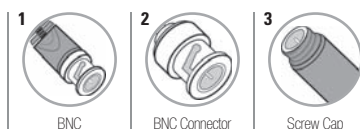
Species	Cat. No.	Construction	Measurement Range	Optimum Temperature Range	Required Reference Electrode	Reference Filling Solution	Calibration Standards	Required ISA
<b>Ammonia standard (NH<sub>3</sub>)</b> 	9512BNWP <sup>1</sup>	Gas sensing combination	5 x 10 <sup>-7</sup> to 1.0 M 0.01 to 17,000 ppm	0 to 50 °C	Included	951202	0.1 M NH <sub>4</sub> Cl / 951006	951211 
<b>Ammonia high performance</b> 	9512HPBNWP <sup>1</sup>	Gas sensing combination	5 x 10 <sup>-7</sup> to 1.0 M 0.01 to 17,000 ppm	0 to 50 °C	Included	951209	0.1 M NH <sub>4</sub> Cl / 951006	951210 
<b>Ammonium (NH<sub>4</sub><sup>+</sup>)</b>	931801 <sup>8</sup>	Plastic membrane half-cell	5 x 10 <sup>-7</sup> to 1.0 M 0.01 to 17,000 ppm	0 to 40 °C	900200	900002 inner/ 900018-WA outer	1000 ppm as N / 951007	–
<b>Bromide (Br<sup>-</sup>) ionplus Design</b>	9635BNWP <sup>1</sup>	ionplus sure-flow solid state combination	5 x 10 <sup>-6</sup> to 1.0 M 0.40 to 79,900 ppm	0 to 80 °C	Included	900063	0.1 M NaBr / 943506	940011
<b>Bromide (Br<sup>-</sup>)</b>	9435BN <sup>2</sup> 9435SC <sup>3</sup>	Solid state half-cell	5 x 10 <sup>-6</sup> to 1.0 M 0.40 to 79,900 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M NaBr / 943506	940011
<b>Cadmium (Cd<sup>2+</sup>) ionplus Design</b>	9648BNWP <sup>1</sup>	ionplus sure-flow solid state combination	1 x 10 <sup>-7</sup> to 0.1 M 0.01 to 11,200 ppm	0 to 80 °C	Included	900061	Consult user guide	940011
<b>Cadmium (Cd<sup>2+</sup>)</b>	9448BN <sup>2</sup> 9448SC <sup>3</sup>	Solid state half-cell	1 x 10 <sup>-7</sup> to 0.1 M 0.01 to 11,200 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	Consult user guide	940011
<b>Calcium (Ca<sup>2+</sup>) ionplus Design</b>	9720BNWP <sup>1</sup>	ionplus sure-flow plastic membrane combination	5 x 10 <sup>-7</sup> to 1.0 M 0.02 to 40,100 ppm	0 to 40 °C	Included	900061	0.1 M CaCl <sub>2</sub> / 922006 100 ppm CaCO <sub>3</sub> / 923206	932011
<b>Calcium (Ca<sup>2+</sup>)</b>	9320BN <sup>2</sup>	Plastic membrane half-cell	5 x 10 <sup>-7</sup> to 1.0 M 0.02 to 40,100 ppm	0 to 40 °C	900100	900011	0.1 M CaCl <sub>2</sub> / 922006 100 ppm CaCO <sub>3</sub> / 923206	932011
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	9502BNWP <sup>1</sup>	Gas sensing combination	1 x 10 <sup>-4</sup> to 1 x 10 <sup>-2</sup> M 4.4 to 440 ppm	0 to 50 °C	Included	950202	0.1 M NaHCO <sub>3</sub> / 950206 1000 ppm as CaCO <sub>3</sub> / 950207	950210
<b>Chloride (Cl<sup>-</sup>) ionplus Design</b> 	9617BNWP <sup>1</sup>	ionplus sure-flow solid state combination	5 x 10 <sup>-6</sup> to 1.0 M 1.8 to 35,500 ppm	0 to 80 °C	Included	900062	0.1 M NaCl / 941706 100 ppm Cl <sup>-</sup> / 941707 1000 ppm Cl <sup>-</sup> / 941708	940011 or 941709 / CISA 
<b>Chloride (Cl<sup>-</sup>)</b> 	9417BN <sup>2</sup> 9417SC <sup>3</sup>	Solid state half-cell	5 x 10 <sup>-6</sup> to 1.0 M 1.8 to 35,500 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M NaCl / 941706 100 ppm Cl <sup>-</sup> / 941707 1000 ppm Cl <sup>-</sup> / 941708	940011 or 941709 / CISA 
<b>Chlorine (Cl<sub>2</sub>)</b> 	9770BNWP <sup>1</sup> 9770SC <sup>3</sup>	Solid state combination	1 x 10 <sup>-7</sup> to 3 x 10 <sup>-4</sup> M 0.01 to 20 ppm	0 to 50 °C	Included	None required	100 ppm as Cl <sub>2</sub> / 977007	977010 / iodide reagent 977011 / acid reagent 
<b>Cupric (Cu<sup>2+</sup>) ionplus Design</b>	9629BNWP <sup>1</sup>	ionplus sure-flow solid state combination	1 x 10 <sup>-8</sup> to 0.1 M 6.4 x 10 <sup>-4</sup> to 6350 ppm	0 to 80 °C	Included	900063	0.1 M Cu(NO <sub>3</sub> ) <sub>2</sub> / 942906	940011
<b>Cupric (Cu<sup>2+</sup>)</b>	9429BN <sup>2</sup> 9429SC <sup>3</sup>	Solid state half-cell	1 x 10 <sup>-8</sup> to 0.1 M 6.4 x 10 <sup>-4</sup> to 6350 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M Cu(NO <sub>3</sub> ) <sub>2</sub> / 942906	940011
<b>Cyanide (CN<sup>-</sup>) ionplus Design</b> 	9606BNWP <sup>1</sup>	ionplus sure-flow solid state combination	8 x 10 <sup>-6</sup> to 1 x 10 <sup>-2</sup> M 0.2 to 260 ppm	0 to 80 °C	Included	900062	Consult user guide	951011 
<b>Cyanide (CN<sup>-</sup>)</b> 	9406BN <sup>2</sup> 9406SC <sup>3</sup>	Solid state half-cell	8 x 10 <sup>-6</sup> to 1 x 10 <sup>-2</sup> M 0.2 to 260 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	Consult user guide	951011 
<b>Fluoride (F<sup>-</sup>) ionplus Design</b> 	9609BNWP <sup>1</sup>	ionplus sure-flow solid state combination	1 x 10 <sup>-6</sup> M to saturated 0.02 ppm to saturated	0 to 80 °C	Included	900061	0.1 M NaF / 940906 100 ppm F <sup>-</sup> / 940907 1 ppm F <sup>-</sup> w/ TISAB II / 040906 2 ppm F <sup>-</sup> w/ TISAB II / 040907 10 ppm F <sup>-</sup> w/ TISAB II / 040908	940909 / TISAB II 940911 / TISAB III
<b>Fluoride (F<sup>-</sup>)</b> 	9409BN <sup>2</sup> 9409SC <sup>3</sup>	Solid state half-cell	1 x 10 <sup>-6</sup> M to saturated 0.02 ppm to saturated	0 to 80 °C	900100	900001	0.1 M NaF / 940906 100 ppm F <sup>-</sup> / 940907 1 ppm F <sup>-</sup> w/ TISAB II / 040906 2 ppm F <sup>-</sup> w/ TISAB II / 040907 10 ppm F <sup>-</sup> w/ TISAB II / 040908	940909 / TISAB II 940911 / TISAB III

 Compliant with EPA testing method

 Signifies a hazardous solution. See terms and conditions for important shipping information at [www.thermoscientific.com/water](http://www.thermoscientific.com/water)



Species	Cat. No.	Construction	Measurement Range	Optimum Temperature Range	Required Reference Electrode	Reference Filling Solution	Calibration Standards	Required ISA
<b>Fluoroborate (BF<sub>4</sub><sup>-</sup>)</b>	9305BN <sup>2</sup>	Plastic membrane half-cell	7 x 10 <sup>-6</sup> to 1.0 M 0.6 to 86,800 ppm	0 to 40 °C	900200	900002 inner / dilute ISA outer	Consult user guide	930711
<b>Iodide (I<sup>-</sup>) ionplus Design</b>	9653BNWP <sup>1</sup>	ionplus <sup>®</sup> sure-flow <sup>®</sup> solid state combination	5 x 10 <sup>-8</sup> to 1.0 M 5 x 10 <sup>-3</sup> to 127,000 ppm	0 to 80 °C	Included	900063	0.1 M NaI / 945306	940011
<b>Iodide (I<sup>-</sup>)</b>	9453BN <sup>2</sup> 9453SC <sup>3</sup>	Solid state half-cell	5 x 10 <sup>-8</sup> to 1.0 M 5 x 10 <sup>-3</sup> to 127,000 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M Na / 945306	940011
<b>Lead (Pb<sup>2+</sup>) ionplus Design</b>	9682BNWP <sup>1</sup>	ionplus sure-flow solid state combination	1 x 10 <sup>-6</sup> to 0.1 M 0.2 to 20,700 ppm	0 to 80 °C	Included	900062	0.1 M Pb(ClO <sub>4</sub> ) <sub>2</sub> / 948206 0.1 M Na <sub>2</sub> SO <sub>4</sub> / 948207	Consult instruction manual
<b>Lead (Pb<sup>2+</sup>)</b>	9482BN <sup>2</sup> 9482SC <sup>3</sup>	Solid state half-cell	1 x 10 <sup>-6</sup> to 0.1 M 0.2 to 20,700 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M Pb(ClO <sub>4</sub> ) <sub>2</sub> / 948206 0.1 M Na <sub>2</sub> SO <sub>4</sub> / 948207	Consult instruction manual
<b>Nitrate (NO<sub>3</sub><sup>-</sup>) ionplus Design</b> <sup>EPA</sup>	9707BNWP <sup>1</sup>	ionplus sure-flow plastic membrane combination	7 x 10 <sup>-6</sup> to 1.0 M 0.1 to 14,000 ppm as N	0 to 40 °C	Included	900046	0.1 M NaNO <sub>3</sub> / 920706 1000 ppm N / 920707 100 ppm N / 930707	930711 or 930710 / nitrate ISS
<b>Nitrate (NO<sub>3</sub><sup>-</sup>)</b> <sup>EPA</sup>	9307BNWP <sup>1</sup>	Plastic membrane half-cell	7 x 10 <sup>-6</sup> to 1.0 M 0.1 to 14,000 ppm as N	0 to 40 °C	900200	900002 inner / 900046 or ISA outer	0.1 M NaNO <sub>3</sub> / 920706 1000 ppm N / 920707 100 ppm N / 930707	930711 or 930710 / nitrate ISS
<b>Potassium (K<sup>+</sup>) ionplus Design</b>	9719BNWP <sup>1</sup>	ionplus sure-flow plastic membrane combination	1 x 10 <sup>-6</sup> to 1.0 M 0.04 to 39,000 ppm	0 to 40 °C	Included	900065	0.1 M KCl / 921906	931911
<b>Potassium (K<sup>+</sup>)</b>	9319BN <sup>2</sup>	Plastic membrane half-cell	1 x 10 <sup>-6</sup> to 1.0 M 0.04 to 39,000 ppm	0 to 40 °C	900200	900002 inner / dilute ISA outer	0.1 M KCl / 921906	931911
<b>Silver/Sulfide (Ag<sup>+</sup>/S<sup>2-</sup>) ionplus Design</b>	9616BNWP <sup>1</sup>	ionplus sure-flow solid state combination	1 x 10 <sup>-7</sup> to 1.0 M 0.01 to 107,900 ppm as Ag <sup>+</sup> 0.003 to 32,100 ppm as S <sup>2-</sup>	0 to 80 °C	Included	900062 for Ag <sup>+</sup> /S <sup>2-</sup> 900067 for Ag <sup>+</sup> 900061 for S <sup>2-</sup>	Consult user guide	940011 for Ag <sup>+</sup> 941609 for S <sup>2-</sup> ⚠
<b>Silver/Sulfide (Ag<sup>+</sup>/S<sup>2-</sup>)</b>	9416BN <sup>2</sup> 9416SC <sup>3</sup>	Solid state half-cell	1 x 10 <sup>-7</sup> to 1.0 M 0.01 to 107,900 ppm as Ag <sup>+</sup> 0.003 to 32,100 ppm as S <sup>2-</sup>	0 to 80 °C	900200	900002 inner / 900003 outer	Consult user guide	940011 for Ag <sup>+</sup> 941609 for S <sup>2-</sup> ⚠
<b>Sodium (Na<sup>+</sup>)</b>	8611BNWP <sup>1</sup>	ROSS <sup>®</sup> sure-flow combination	1 x 10 <sup>-6</sup> M to saturated 0.02 ppm to saturated	0 to 100 °C	Included	900010 or 900012 for low level Na <sup>+</sup>	10 ppm Na <sup>+</sup> / 941105 100 ppm Na <sup>+</sup> / 941107 1000 ppm Na <sup>+</sup> / 841108 KA standard kit, 1 M NaCl with ISA / 650700 0.1 M NaCl / 941706	841111 841113 / conditioning solution
<b>Sodium (Na<sup>+</sup>)</b>	8411BN <sup>2</sup>	ROSS half-cell	1 x 10 <sup>-6</sup> M to saturated 0.02 ppm to saturated	0 to 100 °C	800300 or 800500U	900010 or 900012 for low level Na <sup>+</sup>	10 ppm Na <sup>+</sup> / 941105 100 ppm Na <sup>+</sup> / 941107 1000 ppm Na <sup>+</sup> / 841108 KA standard kit, 1 M NaCl with ISA / 650700 0.1 M NaCl / 941706	841111 841113 / conditioning solution
<b>Sodium (Na<sup>+</sup>)</b>	9811BN <sup>2</sup>	Micro combination	1 x 10 <sup>-6</sup> M to saturated 0.02 ppm to saturated	0 to 80 °C	Included	900004	0.1 M NaCl / 941706	841111
<b>Surfactant</b>	9342BN <sup>2</sup>	Plastic membrane half-cell	Endpoint indicator	0 to 40 °C	900200	900002 inner / 810007 outer	0.5 M Hyamine titrant / 654201	654203 / sample additive
<b>Thiocyanate (SCN<sup>-</sup>)</b>	9458BN <sup>2</sup>	Solid state half-cell	5 x 10 <sup>-6</sup> to 1.0 M 0.29 to 58,100 ppm	0 to 50 °C	900200	900002 inner / 900003 outer	Consult user guide	940011



**Key Information**

**1** BNC Waterproof Connector    **2** BNC Connector  
**3** Screw Cap Connector, requires separate cable  
**8** Module only, requires separate 93 series electrode handle (9300BNWP or 9300SC)  
 All cap diameters are 16 mm at bottom of cap  
 All cable lengths are 1 meter

