APPLICATION NOTE

BRINE ANALYSIS PACKAGE

Brine ISE Kit		
Radiometer Options		
ISEs*		
Ion	**ISE**	**PN**
Br	ISE25Br	E41M001
Ca	ISE25Ca	E41M002
K	ISE25K	E41M009
Cl	ISE25Cl	E41M003
Na	ISE25Na	E41M010
Reference electrode	REF251	E21M001

*use part number A94L114 for BNC screw cap cable connector

Radiometer and SensION+ Options		
Meters		
Model	**PN**	**Description**
ION450	R21M118	ION450 BASIC, pH/EC/ISE meter, Dual Channel
SensION+ MM340	LPV2200.97.0002	sensION+ MM 340 BENCHTOP, Dual Channel

Hach Options		
ISEs		
Ion	**ISE**	**PN**
Cl	ISECl181	ISECl18101 (1 m cable)
	ISECl181	ISECl18103 (3 m cable)
Na	ISENa381	ISENa38101 (1 m cable)
	ISENa381	ISENa38103 (3 m cable)

Meters		
Model	**PN**	**Description**
HQ40d (portable)	HQ40d	HQ40d MULTI PORTABLE METER, Dual Input
HQ440d (benchtop)	HQ440d	HQ440d BENCHTOP METER, MULTI, Dual Input
HQ30d (portable)	HQ30d	HQ30d FLEXI PORTABLE METER, Single Input
HQ430d (benchtop)	HQ430d	HQ430d, BENCHTOP METER, FLEXI, Single Input

Radiometer ISE Analysis Tips:

Bromide ISE
Follow ISE user manual for electrode preparation

ISA solution is 0.1 M KNO_3 (10.111 g/L)
First (inner) salt bridge solution is saturated KCl, include KCl crystals (REF251)
Second salt bridge solution is 0.1 M KNO_3 (10.111 g/L) (REF251)
1 M Br (79.90 g/L) standard = 102.9 g of NaBr in 1 L of DI water

Calibration and standard / sample preparation:
High Range: 0.8, 8.0, 80 g/L use 1:100 dilution with 0.1 M KNO_3 ISA. Take 0.25 mL of standard / sample and dilute up to 25 mls with ISA

Mid Range: 80, 800, 8000 mg/L use 1:100 dilution with 0.1 M KNO_3 ISA. Take 0.25 mL of standard / sample and dilute up to 25 mls with ISA

Low Range: 0.08, 0.8, 8.0 mg/L use 1:2.5 dilution with 0.1 M KNO_3 ISA. Take 10 mL of standard / sample and dilute up to 25 mls with ISA (10 mL stnd / sx + 15 mL ISA)

Potassium ISE

Follow ISE user manual for electrode preparation

ISE conditioning solution is 0.01 M KCl (0.7455 g/L)
ISA solution is 0.1 M $BaCl_2$ (24.42 g/L)
First (inner) salt bridge solution is saturated NaCl, include NaCl crystals (REF251)
Second salt bridge solution is 0.05 M $BaCl_2$, dilute ISA solution 1:1 (REF251)
1 M K (39.1 g/L) standard = 74.55 g of KCl in 1 L of DI water

Calibration and standard / sample preparation:

High Range: 0.4, 4.0, 40 g/L use 1:1 dilution with 0.1 M $BaCl_2$ ISA (10 mL standard / sample + 10 mL ISA)

Low Range: 0.04, 4.0, 40, 400 mg/L use 1:1 dilution with 0.1 M $BaCl_2$ ISA (10 mL standard / sample + 10 mL ISA)

Calcium ISE

Follow ISE user manual for electrode preparation

ISE conditioning solution is 0.01 M $CaCl_2$ (1.11 g/L)
ISA solution is 0.2 M KCl (14.9 g/L)
First (inner) salt bridge solution is saturated KCl, include KCl crystals (REF251)
Second salt bridge solution is 0.1 M KCl, dilute ISA solution 1:1 (REF251)
1 M Ca (40.08 g/L) standard = 110.99 g $CaCl_2$ in 1 L of DI water

Calibration and standard / sample preparation:
High Range: 0.4, 4.0, 40 g/L use 1:20 dilution with 0.2 M KCl ISA (1 mL standard / sample + 19 mL ISA)

Low Range: 0.04, 4.0, 40, 400 mg/L use 1:1 dilution with 0.2 M KCl ISA (10 mL standard / sample + 10 mL ISA)

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