

## APPLICATION NOTE

# MEASURING HIGH RANGE CHLORIDE USING THE CHLORIDE IntelliCAL ION-SELECTIVE ELECTRODE

Follow Hach Cl<sup>-</sup> ISE Procedure for model ISECI18101 or ISECI18103, DOC022.53.80030

### Calibration Standards

Standard 1 - 3.55 g/L, standard 2 - 12.5 g/L, standard 3 - 35 g/L

Prepare a 35 g/L stock standard by weighing out 11.55 g of NaCl, transfer the NaCl into a 200-mL volumetric flask and bring to volume with DI water; invert to mix.

Prepare the 12.5 g/L and 3.55 g/L from the 35 g/L standard: for the 12.5 g/L standard transfer 71.43 g or mLs of the 35 g/L standard into a 200-mL volumetric flask; 3.55 g/L standard transfer 56.8 g or mLs of the 12.5 g/L standard into a 200-mL volumetric flask; invert to mix.

### Setting up the HQ40d (portable) HQ440d (bench top)

Changing the calibration setup (see Change calibration options in the Cl ISE manual):

Press the setup key (wrench), select the ISECI181 settings, and change the current method from default to a difference method name, i.e. HR Cl. Select 'modify current settings', then select 'measurement options' and change the units to 'g/L'. Press exit and go into the calibration options. Select 'std set' and choose 'custom standard set'. Set the 'calibration units' to g/L and press OK; select 'std set values' and create a standard set of 3.55, 12.5 and 35 g/L. Scroll down to standard 3 and change the value to 'custom'. Once this has been selected, enter the standard concentration of 35 g/L, press OK to confirm. Change std 2 to 12.5 g/L and std 1 to 3.55 g/L. Once the new calibration standards have been set, press 'exit' until you reach the main measurement screen. When you have returned to this screen, follow the calibration procedure listed in the Cl ISE manual.

For measurement, set up, interference, maintenance and troubleshooting information, refer to ISE manual DOC022.53.80030.

### Spike recoveries in flowback and produced waters from hydraulic drilling:

Sample ID	Unspiked conc. (g/L)	Spiked conc. (g/L)	% Recovery
1	345	547.5	108
2	243.3	420	101
3	26.9	62.5	102
4	81.5	110	92
5	20.5	56.5	105
4-A	169.8	330	91
11	213.5	375	94
20-13	60	92.5	96

\*Samples were spiked with 7 g Cl/L. Depending on the initial dilution factor that was used, either 5 or 25, the final spike concentration was 35 or 175 g Cl/L. The flowback and produced waters did not display any issues with interference due to the spike recoveries all being 90% and above. For a complete list of possible interferences with this procedure, see the Cl ISE manual.

#### FOR TECHNICAL ASSISTANCE, PRICE INFORMATION AND ORDERING:

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To locate the HACH office or distributor serving you, visit: [www.hach.com](http://www.hach.com)

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