

## Dionex ERS 500 Electrolytically Regenerated Suppressor New Quick Start

### Hydration

**NOTE:** To ensure a full and proper hydration, this new method is recommended over the previous syringe fill method.

1. If also installing a new guard and/or analytical column, follow the column startup procedure(s) before moving on to Step 2. The column effluent should be diverted to waste for at least 10 column volumes before installing the new suppressor.
2. Install the suppressor in the system, plumbing the unit in the recycle mode (refer to Figure 1, below).
3. Pump  $\leq 10$  mM eluent at the application flow rate into the suppressor for 5 minutes, from the Eluent IN port. **The power to the suppressor must be off during this step.**

*Note Care should be taken not to exceed 100 psi of backpressure on the Dionex ERS 500 suppressor. The backpressure to the suppressor includes any tubing, cell, and backpressure coils that are connected to the eluent out port of the suppressor.*

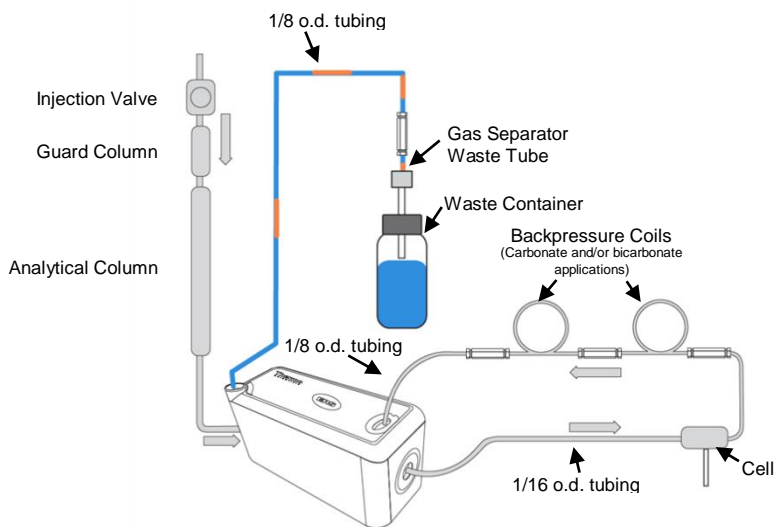
4. Turn off the pump and allow the suppressor to sit for approximately 20 minutes to fully hydrate the suppressor resin, screens, and membranes.
5. After completion of Steps 1 through 4, normal operation may resume, using the application eluent strength and current recommendation.

### 1. Back Pressure Coils

Back pressure coils help to prevent gases generated during AutoSuppression from out-gassing by compressing the bubbles. The bubbles can be occasionally trapped in the detector cell causing noise. For example, carbonate eluent is suppressed to carbonic acid, which is CO<sub>2</sub> gas in equilibrium with DI water, and CO<sub>2</sub> gas can come out of solution if adequate pressure is not applied. Therefore, Thermo Scientific Dionex highly recommends the addition of 30-40 psi of backpressure, especially for carbonate and/or bicarbonate applications. It should be noted that for RFIC hydroxide or MSA applications it may be possible to operate the cell without any backpressure.

### 2. Plumbing for the AutoSuppression Recycle Mode Operation

**Figure 1** The AutoSuppression Recycle Mode Plumbing Diagram



The AutoSuppression Recycle Mode is the easiest and most common mode of operation. As the eluent passes through the suppressor, it is neutralized to produce its weakly ionized form. After passing through the conductivity cell, this effluent can be redirected to the regenerant inlet on the suppressor, thus supplying it with a source of water containing a small amount of diluted analyte. The main advantage of this mode is its simplicity and ease of use.

**CAUTION:** *Only use the AutoSuppression Recycle Mode for eluents and samples without organic solvents or metallic contaminants such as iron in ground water samples.*

**NOTE:** *Select the equivalent SRS Mode on the power supply to support the Dionex ERS 500 suppressor if ERS modes are not available. The Dionex ERS 500 is fully compatible with SRS settings.*

### 3. AutoSuppression External Water Mode Operation Recommendations

The AutoSuppression External Water mode is primarily recommended with solvent-containing eluents (up to 40%, compared to 25% maximum for RFIC-EG KOH systems) and for samples with complex matrices, such as samples containing high levels of precipitating ions, i.e., transition metals, calcium or magnesium.

The Dionex ERS 500 suppressor requires a lower external flow rate for optimal operation than previous generations of electrolytically regenerated suppressors. The recommended and maximum flow rate settings are given in the table below:

**Table 1** External Water Flow Rate recommendations

Recommended External Water Flow Rate	Equal to the Eluent Flow Rate
Maximum External Water Flow Rate	2 mL/min (2 mm suppressors) 5 mL/min (4 mm suppressors)

The Dionex ERS 500 suppressor requires a head pressure to maintain flow after the current is turned on; it is therefore recommended to begin operation by setting the external water pressure to 10-15 psi. After 10 minutes of operation with the current turned on, the pressure should be adjusted to achieve the recommended flow rate as shown in the table above.