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# SelexION<sup>®</sup> or SelexION<sup>®</sup>+ Technology

## Differential Mobility Separation Device

### Troubleshooting for Customers



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## DMS Discharge Error in the Analyst<sup>®</sup> or Analyst<sup>®</sup> TF Software

Possible Cause	Diagnosis	Corrective Action
Electrodes are dirty.	<ol style="list-style-type: none"><li>1. Decrease Separation Voltage (SV) until the discharge stops.</li><li>2. Increase SV and monitor the orifice for physical discharge.</li></ol> Result: Discharge is observed.	<ol style="list-style-type: none"><li>1. Remove the ion mobility cell.</li><li>2. Remove and clean the electrodes following the established cleaning procedure</li></ol>
Modifier fluid is not fully vaporized.	<ol style="list-style-type: none"><li>1. Remove the curtain plate and the ion mobility cell.</li><li>2. Use UHP nitrogen to dry the ion mobility cell.</li><li>3. Install the curtain plate and ion mobility cell, and allow the heater to equilibrate for 40 minutes.</li></ol>	Set standard equilibration time for the ion mobility cell to 40 minutes to make sure that the heater and ion mobility cell are equilibrated.

Possible Cause	Diagnosis	Corrective Action
<p>The electrodes are misaligned.</p>	<ol style="list-style-type: none"> <li data-bbox="482 319 966 462">1. (SelexION<sup>®+</sup> technology) Make sure that the "B" marking is visible on the side of the ion mobility cell that faces into the mass spectrometer.</li> <li data-bbox="482 491 966 558"> <p><b>Figure 1-1 "B" Marking on the Electrodes</b></p>  </li> <li data-bbox="482 1150 966 1444">2. (SelexION<sup>®</sup> technology) Make sure that the end of the electrode that extends furthest from the screw is closest to the mass spectrometer. The electrode must be flush with the surface of the ion mobility cell.</li> <li data-bbox="482 1377 966 1444">3. Verify horizontal alignment with the spacer tool.</li> </ol>	<p>Reassemble and align the electrodes with the spacer tool.</p>

## No Modifier Fluid is Flowing

Possible Cause	Diagnosis	Corrective Action
The pump is not primed.	The modifier lines require purging.	Purge the modifier. Refer to the <i>User Guide</i> .
Incorrect fittings are used on the pump.	Inspect the pump fittings to make sure that they are green fittings. Result: Fittings are the wrong type.	Install the correct fittings.
The liquid lines are blocked or partially blocked, so fluid does not flow, even though the motor is rotating.	Inspect the liquid lines for an air bubble or damage. Result: Blockages or damage is observed.	Replace the tubing or fittings.
The pump motor does not rotate because it is binding or faulty.	Inspect for fluid flow. Result: No fluid is flowing.	Contact the FSE.
The pump motor does not rotate because of a communication error.	1. Shut down the system. 2. Start up the system. Result: The pump motor does not start, or the modifier does not flow at the correct speed.	Contact the FSE.
The Curtain Gas™ flow rate is too high.	Reduce the Curtain Gas™ flow, monitoring the flow in the modifier lines. Result: The modifier begins flowing when the flow rate is reduced.	Update the Curtain Gas™ flow in the method.
The modifier suction filter is clogged.	1. Remove the suction filter from the modifier line. 2. Test the modifier pump flow. Result: The modifier flows correctly.	Replace the suction filter.

## The Pump Motor Makes Excessive Noise

Possible Cause	Diagnosis	Corrective Action
The pump is not primed.	The modifier lines require purging.	Purge the modifier. Refer to the <i>User Guide</i> .
The pump motor does not rotate because it is binding or faulty.	Inspect for fluid flow. Result: No fluid is flowing.	Contact the FSE.
The pump motor does not rotate because of a communication error.	1. Shut down the system. 2. Start up the system. Result: The pump motor does not start, or the modifier does not flow at the correct speed.	Contact the FSE.

## Modifier is Flowing in the Wrong Direction

Possible Cause	Diagnosis	Corrective Action
Air is present in the modifier lines.	The modifier lines require purging.	Purge the modifier. Refer to the <i>User Guide</i> .
Incorrect fittings are used on the pump.	Inspect the pump fittings to make sure that they are green fittings. Result: Fittings are the wrong type.	Install the correct fittings.
The Curtain Gas™ flow rate is too high.	Reduce the Curtain Gas™ flow, monitoring the flow in the modifier lines. Result: The modifier begins flowing when the flow rate is reduced.	Update the Curtain Gas™ flow in the method.

## Noise Levels are High When Modifiers are Used

Possible Cause	Diagnosis	Corrective Action
The modifier line contains bubbles.	Inspect for leaks. Result: Leaks are observed.	Tighten connections or replace leaking fluid lines.
The mixer manifold or modifier valve is faulty.	N/A	Contact the FSE.

## A DMS Temperature (DT) Error has Occurred

Possible Cause	Diagnosis	Corrective Action
A short has occurred in the SelexION <sup>®</sup> or SelexION <sup>®+</sup> curtain plate.	N/A	Replace the curtain plate.

## The COV Drifts

Sensitivity is low, or the optimal COV shifts during optimization.

Possible Cause	Diagnosis	Corrective Action
Equilibration time for the ion mobility cell is insufficient.	Increase the equilibration time. Result: COV stops drifting.  <b>Note:</b> When a modifier is being used, equilibration times of greater than 30 minutes might be required.	Update the method with the new equilibration time.
Solvents are not fresh.	Inspect the solvent bottles to determine the preparation date. Result: Solvents are not fresh.	Prepare fresh solvents and then run the COV test again.
The environmental board is faulty.	N/A	Contact the FSE.