

MSQ Plus Mass Detector Calmix Kit Preparation Guide

This preparation guide describes how to prepare the MSQ Plus Mass Detector calibration solution for autotune and mass calibration. These instructions supersede those in the *Surveyor MSQ Plus Getting Started Guide*.

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Kit Contents

The MSQ Plus Mass Detector Calmix Kit (Part Number 60111-62021) includes a concentrated stock calibration solution of three inorganic salts, with the following concentrations:

- Sodium iodide (NaI): 130 mM
- Potassium iodide (KI): 5 mM
- Cesium iodide (CsI): 2 mM

The inorganic salts are dissolved in 2.5 mL ($\pm 1\%$) of solvent and packaged in a sealed ampoule. The solvent is a 92:8 mixture of HPLC-grade water (H₂O) and reagent-grade isopropanol (IPA). The neck of the ampoule is scored for easy and safe opening.

Three ampoules and three labels are included in the Calmix Kit. The labels denote the expiration date (36 months from date of manufacture), the lot number, and the Thermo Scientific and supplier-provided part numbers. The Calmix Kit contains a gravimetric certificate of analysis corresponding to the lot number. It also includes the Material Safety Data Sheet (MSDS) for the calibration solution.

Preparing the Calibration Solution

❖ To prepare the working concentration of calibration solution

1. In a graduated cylinder, prepare 250 mL (± 20 mL) of diluent:
 - 125 mL (± 10 mL) of HPLC-grade H₂O
 - 125 mL (± 10 mL) of reagent-grade IPA

Note The efficacy of the calibration solution depends on high-quality diluent and clean glassware, because the solvent adducts must be properly formed in the electrospray source and the reference masses must be detected against the background of electronic and chemical noise.

2. Transfer 100 mL (± 10 mL) of the diluent from the graduated cylinder to the 250 mL Nalgene bottle that is attached to the front panel (inlet side) of the MSQ Plus Mass Detector.
3. Transfer the entire contents of a single ampoule to the Nalgene bottle. You can use a transfer pipet to facilitate the transfer.
4. Transfer the remaining volume of the diluent from the graduated cylinder to the Nalgene bottle.
5. Attach one of the labels from the Calmix Kit to the Nalgene bottle.
6. Firmly seal the Nalgene bottle of the MSQ Plus Mass Detector inlet reservoir and mix the solution by swirling the bottle.

Note The Nalgene bottle is pressurized from 1.0 to 1.5 bar during the autotune and mass calibration process, requiring a leak-tight seal.

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7. Once the autotune and mass calibration process is complete, bypass the injection valve by attaching the transfer line from the HPLC system to the grounded union on the front panel of the mass detector. This last step does not apply to MSQ systems that are grounded through the injection valve—that is, released before January 2005 (serial number below 201 xx).