



Setting up Chemical Ionization Methane reagent gas flow Applies to 5973A/N Mass Spec

Caution: Always verify MSD system performance in EI (Electron Impact) before switching to CI (Chemical Ionization) mode of operation. Always set up the CI MSD in PCI (Positive Chemical Ionization) first, "using Methane", even if you're planning to run in the NCI (Negative Chemical Ionization) mode.

To set up methane reagent gas flow for CI operation:

The reagent gas flow must be adjusted for maximum stability before tuning the CI system. Perform the **initial** setup with methane as your reagent gas in the positive ion mode (PCI). There is no flow adjustment procedure available for the negative ionization mode (NCI), as there are no negative reagent ions formed.

Adjusting the methane reagent gas flow is a three (3) step process:

1. Setting the flow control.
2. Pre-tuning on the reagent gas ions.
3. Adjusting the flow for reagent gas ion ratios for methane, m/z 28 / 27.

Your data system will prompt you through the flow adjustment procedures.

Caution: After the system has been switched from EI to CI mode, or vented for any other reason, the MSD must be baked out for at least 2 hours before tuning.

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Setting up Methane gas flow:

1. Press the Gas A button. Verify that only the Gas A light is on.
2. Adjust the flow to 20% for PCI/NCI MSD's, or 10% for PCI only MSD's.
3. Check the vacuum gauge controller to verify correct pressure.
4. Select **Methane Pre-tune** from the setup menu.

Note: the Methane pre-tune tunes the instrument for optimum monitoring of the ratio of methane reagent ions m/z 28 / 27.

5. Examine the displayed profile scan of the reagent gas ions.
 - Verify that there is no peak present at m/z 32. A peak at this mass indicates an air leak. If it is present, find and repair the leak before proceeding. Operating the Mass Spec in CI mode of operation with an air leak will rapidly contaminate the ion source.
 - Make sure that the peak at m/z 19 (protonated water) is less than 50% of the peak at m/z 17.
6. Perform the Methane flow adjustment:
 - Adjust the methane flow on the PCI/NCI MSD to get the ratio of m/z 28 / 27 between 1.5 and 5.0.
 - Adjust the methane flow on the PCI MSD to get the ratio of m/z 28 / 27 between 0.5 and 3.0.