Agilent Technologies

Using Target Tune to Tune for DFTPP

MS ChemStation

The MS ChemStation provides Target Tune utilities that meet specific ion ratio criteria. A generic Target Tune, a BFB Tune, as well as a DFTPP tune are included. The ion ratio targets for these programs can be altered to achieve the level of relative abundances that you require.

About Target Tuning

Target tuning involves tuning the instrument with either DFTPP Tune, BFB Tune, or Target Tune. The tune is saved in a tune file (respectively, DFTPP.U, BFB.U, or TARGET.U) for your particular instrument. You must run a target tune before running a target tune method. You cannot run a target tune method (such as DFTPP625.M) unless the appropriate tune file (DFTPP.U) already exists.
After a DFTPP (or BFB) Tune, run a sample using the appropriate acquisition method (e.g., DFTPP625.M) and the corresponding tune performance compound (DFTPP). The method prints a report detailing whether or not the instrument passed the DFTPP criteria. If it does not pass, you can modify the tune targets and try again.

DFTPP Tuning

DFTPP Tune is accessed from the View menu in the Instrument Control, Manual Tune, or Diagnostics views. On an Agilent 5973 / 75 MSD, Target Tune is accessed from Manual
Tune by selecting Tune/DFTPP Tune. DFTPP tuning allows you to adjust MS parameters to meet relative abundance criteria defined by EPA methods 625, or any other method.

The DFTPP tune is designed to meet the tuning requirements of EPA method 625 and 0ther methods that use DFTPP as a tuning compound. This tune uses the target relative abundances provided in the macro file DFTPP.TGT:

PFTBA ion	DFTPP ion	Rel. %
69	51	100
131	127	35
219	198	30
502	442	0.8

Because DFTPP Tune makes its adjustments while scanning PFTBA, the target ratios provided in the file DFTPP.TGT must specify relative abundances for prominent ions in the spectrum of PFTBA, not DFTPP. The table above shows which PFTBA ions correspond to the USEPA-specified masses in DFTPP.

This tune assumes that the instrument is already tuned to PFTBA. When a target tune is finished, the instrument parameters are stored in DFTPP.U. This tune file should be specified in the acquisition methods for analyses that use this tune reference compound.

The test of a successful DFTPP tune may be made by loading and running the verification method **DFTPP625.M**.
If the ion abundances do not match EPA criteria, see **Improving Target Tune Results**.

Improving Target Tune Results
If DFTPP tune results fail to meet EPA criteria, load the appropriate target file, dftpp.tgt, and then select **Set Tune Targets**. (You may want to save your previous .TGT file under another name, such as **dftppold.tgt**, because this procedure will change the values in the file.)

To raise the relative abundance for a DFTPP ion, take one of the following actions:

- Raise the target ratio for its corresponding PFTBA ion
- Lower the target ratios for all other PFTBA tune ions

To lower the relative abundance for a DFTPP ion, take one of the following actions:

- Lower the target ratio for its corresponding PFTBA ion

- Raise the target ratios for all other tune ions

(See **Set Tune Targets** below)

Save the new tune value. Then tune to the new targets by selecting DFTPP Tune. Inject DFTPP, acquire data, and compare your results against EPA criteria. This can be a repetitious process, but it generally takes only one or two passes.

To Set Tune Targets

1. Select Tune / Set Tune Targets in the Target Tune view (on an Agilent 5973 / 75 MSD, select it from the Manual Tune view).
2. A box prompts for the target relative abundance for each of three PFTBA target masses--131, 219, and 502 amu--relative to m/z 69 at 100%.
3. On an Agilent 5973 / 75 MSD, the box prompts for the target masses 50, 131, 219, 414,
4. & 502
5. Enter the % values so that the relative abundances for the required tune reference compound (DFTPP) are achieved
6. Click OK