# Agilent Technologies

Troubleshooting DFTPP Tuning Issues

DFTPP is the compound specified by the EPA to be used to verify that mass spectrometer voltages are set correctly. This requires the operator to tune the mass spectrometer using PFTBA (the tuning fluid internal to the MSD) as a reference compound to adjust the voltages of the source to achieve the correct ion ratios. Typically using the automated DFTPP tuning in Manual Tune Mode will suffice. When the DFTPP is then injected, the fragmentation pattern in the mass spectrometer should pass the EPA ion ratio criteria specified in the method.

Over time the ratios will start to fail. The first thought is usually to retune the mass spectrometer. This may correct the problem, however it can negate the previous curve, requiring the operator to recalibrate the instrument. The following should be considered before re-tuning.

The first thing to look at is the abundance of mass 198. This can be accomplished by looking at the DFTPP runs that preceded the tune failure. The following is an example.

Average of 9.487 to 9.498 min.: DFTPP.D (-)
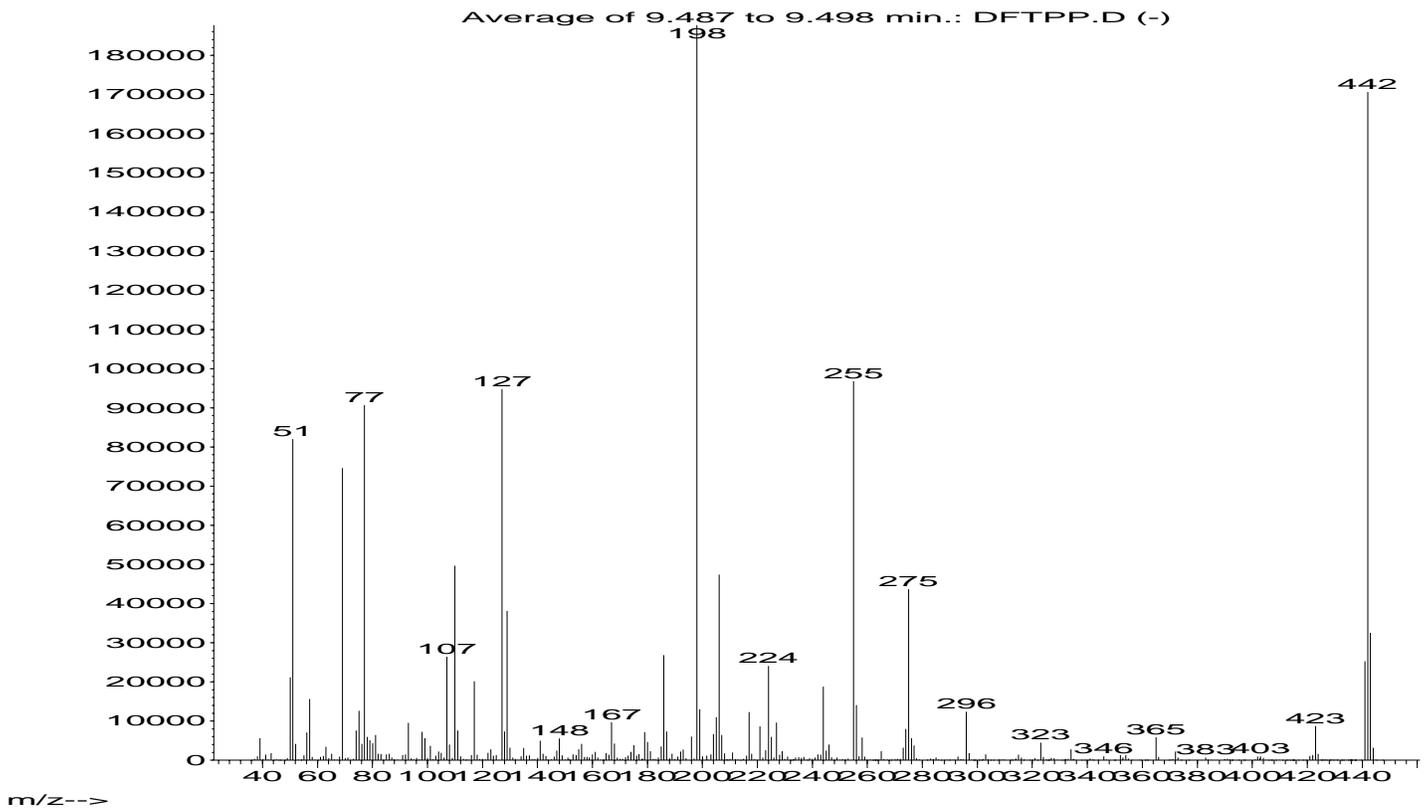
Notice the y-axis abundance for mass 198 on the order of 180,000 counts. If the same solution is used over time, the abundance of mass 198 may increase. This in turn can make the ratio of the 442 increase, resulting in the failure to pass the EPA criteria at the higher mass fragment. This can be due to the evaporation of the solvent, which in turn makes the concentration of the DFTPP higher than that originally prepared.

Prepare a new solution of DFTPP from a fresh stock standard. If this is the scenario, the abundance of the 198 should be more similar to the injection from the DFTPP that was performed after the last tuning was done.

At this point, if the tune is still failing, evaluate the integrity of the source performance. It is a good idea to keep a reference tune (autotune) to evaluate source performance. If a current autotune appears to be significantly different in the 219 and 502 ratios, as well as the isotope ratios (70, 220, and 503), it may be time to clean the source.

If the above suggestions are not effective, re-evaluate the tuning method. Agilent Technologies does offer enhanced application assistance at 1-800-227-9770 for a nominal fee.