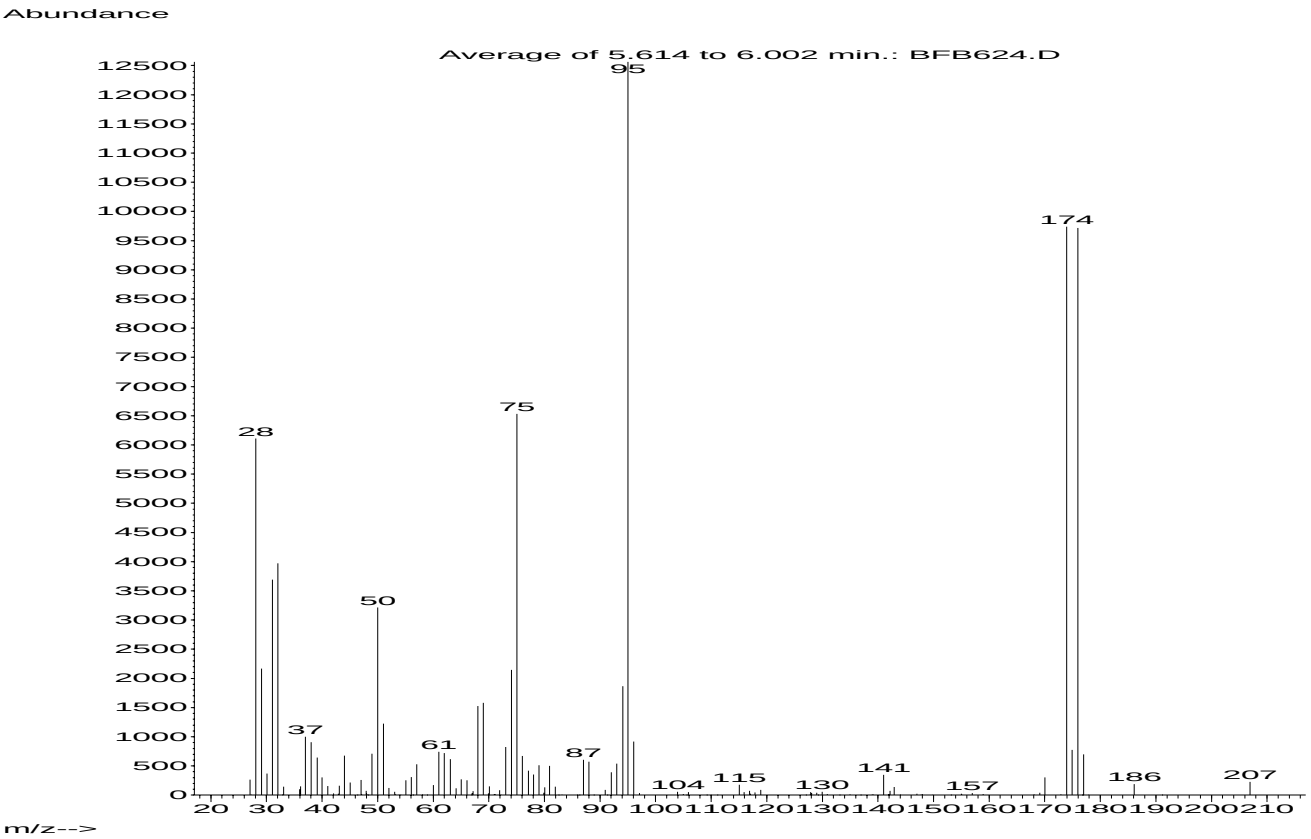
Agilent Technologies

Troubleshooting BFB Tuning Issues

BFB is the compound required by the EPA to be used to test to see if the mass spectrometer voltages are set correctly. This requires the operator to tune the mass spectrometer using PFTBA as a reference compound to adjust the voltages of the source to gain the correct ion ratios, so when the BFB is injected and fragmented by the mass spectrometer, it will pass the EPA ion ratio criteria that is specified in the method.

Over time the ratios will start to fail. The first thought is usually to retune the mass spectrometer. This will fix the problem, however it can negate the previous curve, requiring the operator to recalibrate the instrument. The following is a discussion of alternate troubleshooting techniques that can be used before a retune may be required.

The first thing to look at is the abundance of mass 95. This can be accomplished by looking at the BFB run that was performed after the last tuning was done. The following is an example.



Notice a y-axis abundance for mass 95 of 12,500 counts. If this same solution is used over time, the abundance of mass 95 may be getting smaller. This in turn will usually make the ratio of the 174 also to go down, resulting in the failure to pass the EPA criteria at the higher mass fragment. This is normally due the evaporation of the BFB, which in turn makes the concentration of the BFB lower than what was originally prepared.

In this case, prepare a new solution of BFB from a fresh stock standard. If this is the case, the abundance of the 95 may be more similar to the injection from the BFB that was performed after the last tuning was done.

For additional information on BFB tuning, refer to Agilent Technologies Application Note 5988-4373EN. If you are still having a problem, please call 1-800-227-9770. We can offer to help you resolve the tuning issue for a minimal charge.