

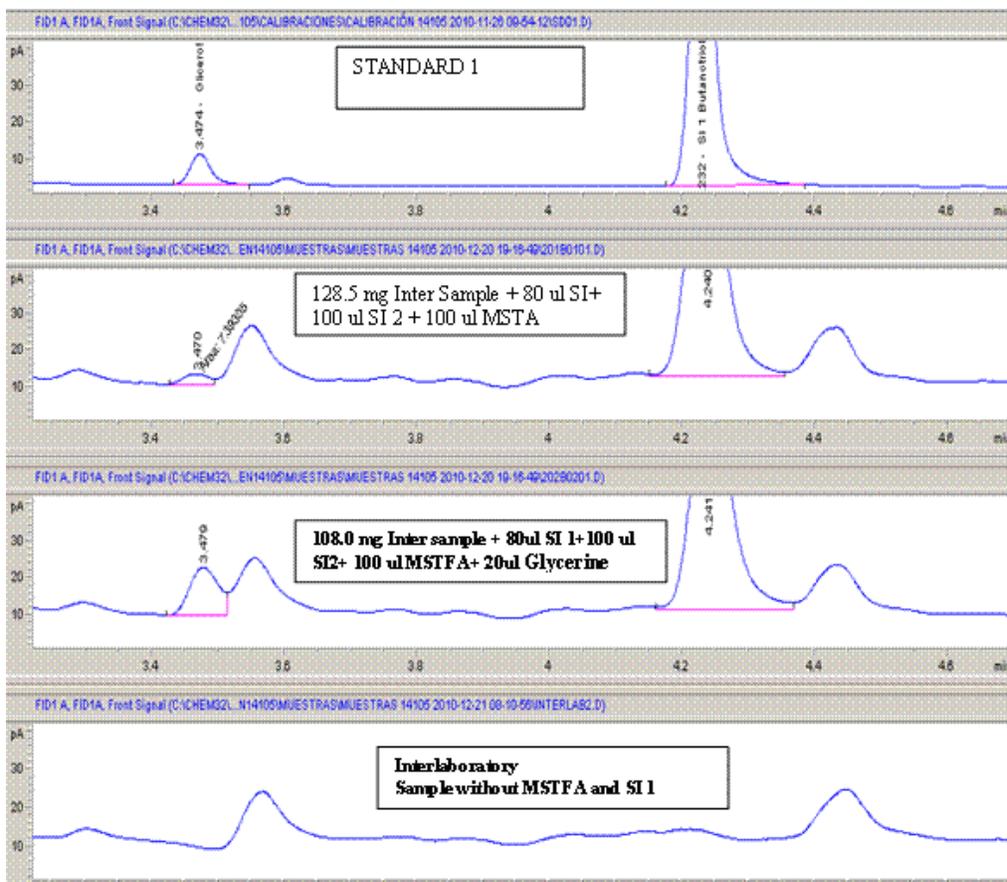
Free glycerol content in B100

After the issue of the final report iis10G05 on B100 (biodiesel) one of the participating laboratories questioned the assigned value for free glycerol (0.0106% M/M) in December 2010.

This participating laboratory had determined the free glycerol content by GC/FID and this laboratory did detect only very little glycerol (0.001% M/M or 10 mg/kg) in the PT sample #1066.

However this laboratory noticed a peak close to (behind) the retention time of glycerol. See the second chromatogram (the first chromatogram shows a glycerol standard after silylation). When this peak was quantified as glycerol, it gave 0.014% M/M. Regretfully the laboratory was unable to identify the component that eluted close to glycerol.

When free glycerol was added to the sample, a double peak around the retention time of glycerol appeared (see the third chromatogram). When sample #1066 was tested without the silylation step, the peak of the unknown component was also visible (see the fourth chromatogram), thus proving that the unknown component was not glycerol.



As this would mean that a significant number of participating laboratories did report a false positive free glycerol result, an investigation was started.

On request of iis, a second laboratory investigated sample #1066 by GC/MS and found that the sample was contaminated with a small amount of automotive diesel. One of the alkanes (tridecane) present in the diesel (almost) co-eluted with glycerol and probably was identified by most participants as glycerol. The actual glycerol content present in sample #1066 could not be estimated by this laboratory due to the low glycerol concentration and the severe interference of the tridecane. But the glycerol concentration will be <0.01% M/M without doubt.

From the above results was concluded that the assigned value for glycerol as reported in our report iis10G05 of December 2010 indeed was incorrect. The correct glycerol content of sample is unknown, but will be less than 0.01% M/M and will probably be between 0.001 and 0.005% M/M, thus in agreement with the 7 lowest reported test results (laboratories 171, 323, 345, 1067, 1161, 1179 and 1299).