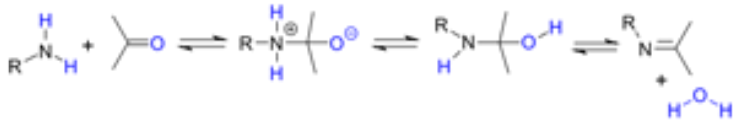
Can I Use Primary Amines With Acetone as the Mobile Phase in LCMS? – FAQ

Yes, you can. Watch out for imines.

However, some labs react acetone with primary amines (+heat) to form acetone adducts (imines) in GC and GCMS. This reaction while using acetone as a mobile phase component in LCMS along with primary amines as part of the sample is something to consider. This reaction, according the University of Liverpool requires a primary amine, a ketone or aldehyde *(in this case acetone)* and an acid as a catalyst. The acid is required to eliminate water otherwise the reaction is very slow. The reaction can be explained by the following mechanism:



In our lab, working with Acetone and amines, **we have not seen** this reaction nor any effect of it while using Acetone as a mobile phase for analyzing amines as samples. This is most likely due to the fact that we have always used at least a 5% aqueous component with an increasing percentage in our gradients.

It is important to know this reaction can occur especially under optimal conditions or if you are heating your samples over 40°C in the presence of acid.

Reaction of Acetone and Primary Amine

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