

THE ENE REACTION OF TRIFLUOROMETHYL KETONES AND CONVERSION  
OF THE PRODUCTS TO TETRAHYDROFURAN DERIVATIVES

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The ene reaction of trifluoromethyl ketones with allyl compounds gave tri-  
fluoromethylated homoallyl alcohols. Hexafluoroacetone, bis(trifluoromethyl)  
ketone, reacted with terminal vinyl compounds only by heating, but the reaction of  
trifluoroacetone and 1,1,1-trifluoro-2-hexanone, mono(trifluoromethyl)ketones, did  
not proceed thermally at all. Some Lewis acids were examined as a catalyst, and  
 $\text{AlCl}_3$  was found to be a good catalyst. Treatment of the ene products, (trifluoro-  
methyl)homoallyl alcohols, with p-toluenesulfonic acid resulted in their cycliza-  
tion to give many kinds of trifluoromethylated tetrahydrofuran derivatives. Some  
results of ene reactions and formation of tetrahydrofurans are shown in the chart.

