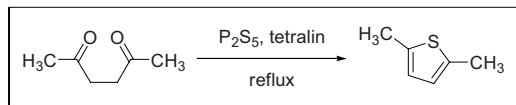
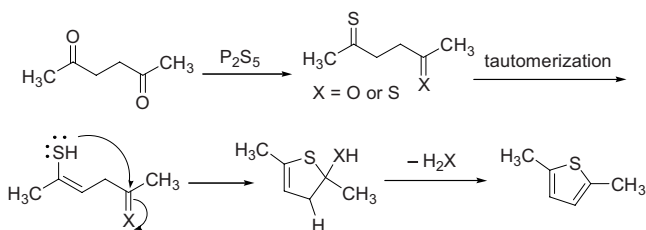


Paal thiophene synthesis

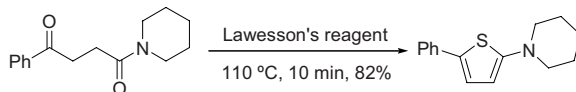
Thiophene synthesis from addition of a sulfur atom to 1,4-diketones and subsequent dehydration.



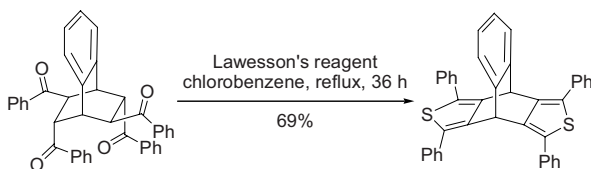
The reaction now is frequently carried out using the Lawesson's reagent. For the mechanism of carbonyl to thiocarbonyl transformation, see Lawesson's reagent on page 328.



Example 1²



Example 2³



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