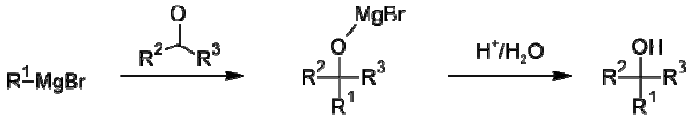
Answer on Question#38931-Chemistry-Other

Question

What is Grigrard's reagent? How is it prepared?

Answer

The Grigrard's reagent is an alkyl- or aryl-magnesium halide (most often bromide): R–MgBr, wherein R is alkyl- or aryl-group. The Grigrard's reagent is used to introduce an alkyl- or aryl-group via addition to a carbonyl group in an aldehyde or ketone:



The Grignard’s reagent is prepared by the reaction of an alkyl- or aryl-halide with magnesium metal:

$$R–Br + Mg \rightarrow R–MgBr$$

The reaction is conducted by adding the organic halide to a suspension of magnesium in an etherial solvent (typically diethyl ether), which provides ligands required to stabilize the organo-magnesium compound. The flask is fitted with a reflux condenser, and the mixture is warmed over a water bath for 20 - 30 minutes.

Everything must be perfectly dry because Grignard reagents react with water.