Modern Friedel-Crafts chemistry. Part-26. A facile synthesis of trans-2-methyl-1-phenylindan via rearranged intramolecular cyclialkylati on of 1,2-biphenyl-2-methyl-2-propanol under Friedel-Crafts conditions

Diphenyl-2-methyl-2-propanol (1) was prepared by two-1,2 alternative Grignard methods. Treatment of 1 with AlCl3, AlCl3/CH3NO2 or K10 clay catalyst in benzene, toluene or dichloromethane solvent at varying temperatures for varying times gave trans-2-methyl-1-phenylindan (4) as sole or major product. Side products including isomeric alkenes 7 and 8, isomeric chlorides 9 and 10, isomeric triarylated isobutanes methyl-3-phenylindan (5) and 2-methyl-1-11,11-14 phenylindene (6) were also detected by GC-MS technique.

Mechanistic interpretations and explanatory comments are offered.

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