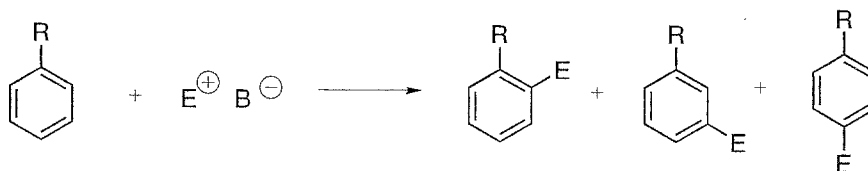



Monosubstituted benzenes. Ortho/Para and Meta-directing Groups



R	Substitution Pattern	Relative Rate of Reaction	
H (benzene)	—	1	
NH ₂ , NHR, NR ₂	o/p-directors	Much Faster Much Faster Much Faster Faster Faster Slower	Activators
OH			
OR			
alkyl			
NHCOR			
I, Br, Cl, F			
			
Y = OH, OR, NH ₂ , Cl, aryl, alkyl			
SO ₃ H			
NO ₂			
CN			
NR ₃			

In General: o/p-directors are faster reactions compared to benzene (**except** halides)

meta-directors are slower reactions compared to benzene