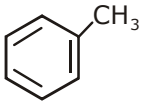
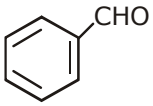
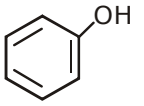
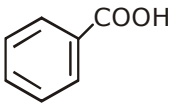
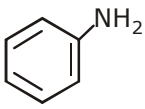
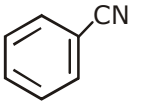
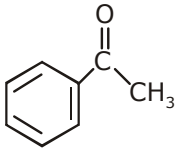
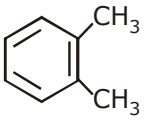
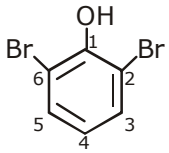
AROMATIC COMPOUND

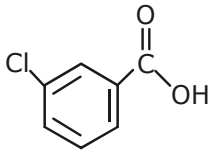
some important aromatic compounds with their common names.

Formula	Name	Formula	Name
	**Toluene (bp 111 °C)**		**Benzaldehyde (bp 178 °C)**
	**Phenol (mp 43 °C)**		**Benzoic acid (mp 122 °C)**
	**Aniline (bp 184 °C)**		**Benzonitrile (bp 191 °C)**
	**Acetophenone (mp 21 °C)**		**Ortho-xylene (bp 144 °C)**

IUPAC Name of Substituted phenol and benzoic acid.

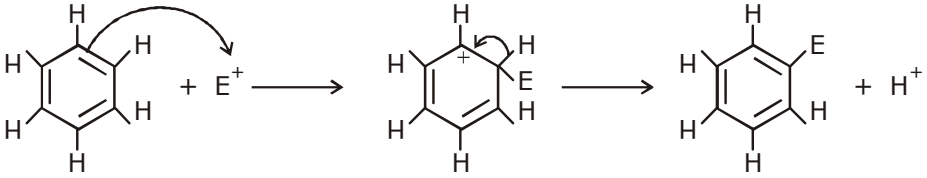


2,6-Dibromophenol

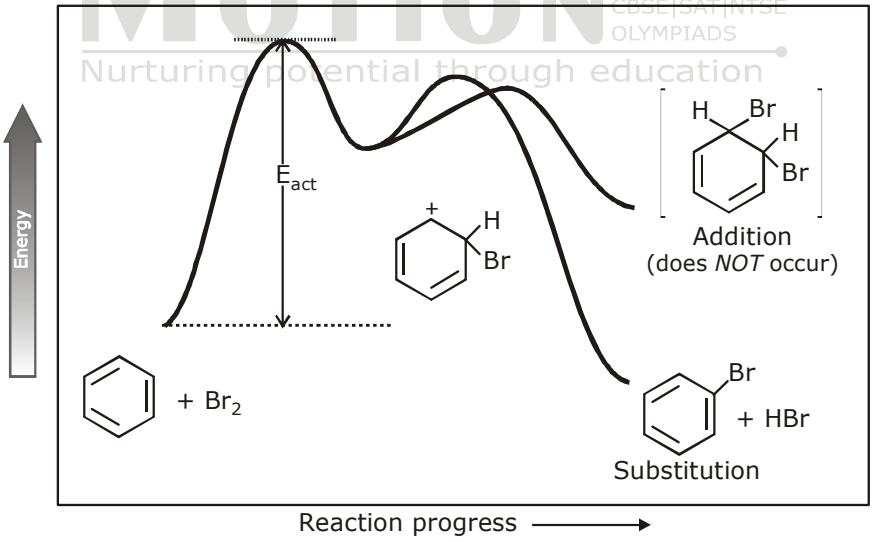


m-chlorobenzoic acid

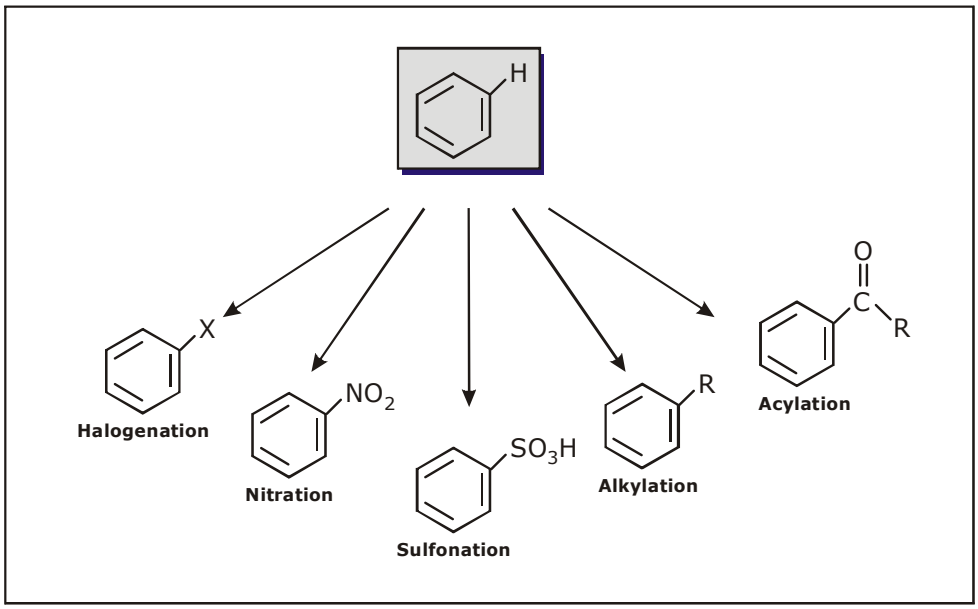
Electrophilic Aromatic Substitution Reaction



A reaction energy diagram for the electrophilic bromination of benzene. The reaction occurs in two steps and releases energy.



Some Electrophilic Aromatic substitution reactions:



(i) **Ortho- and para-directing activators :** Groups like –OH ad $-NH_2$ present on a ring direct an electrophile, E^+, to ortho or para position and they react faster than benzene.

(ii) **Ortho- and para-directing deactivators :** Helogens present on a ring direct an electrophile, E^+, to ortho or para positions, and they react slower than benzene.

(iii) **Meta-directing deactivators :** Groups containing a carbonyl (C = O) or a –CN group direct an electrophile, E^+, to the meta positions, *but* they react slower than benzene.

No meta-directing activators are known. Figure 5.8 shows how the directing effects of the groups correlate with their reactivities. All meta directing grops are deactivating and most ortho-and para-directing groups are activating. The halogens are unique in being ortho and para directing *and* deactivating.

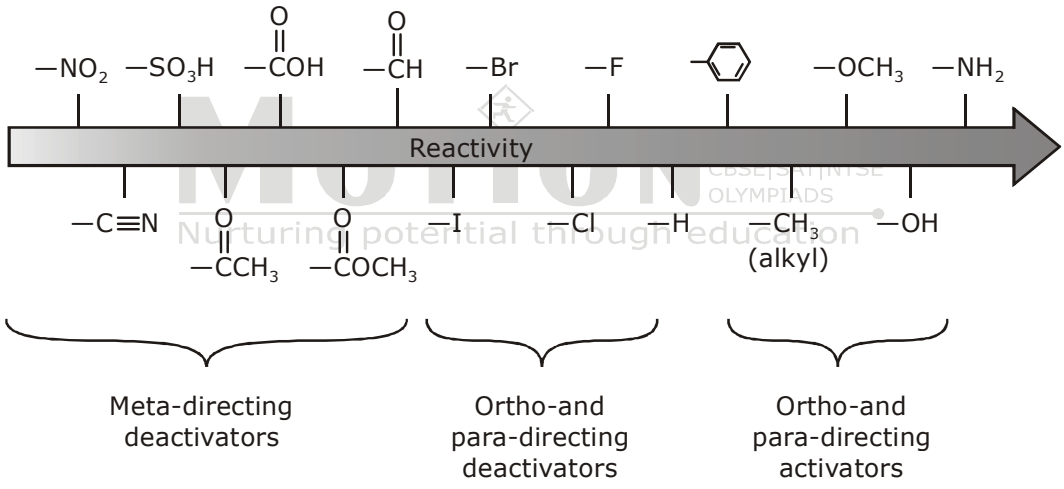


Figure Substituent effects in electrophilic aromatic substitutions. All activating groups are ortho-and para-directing, and all deactivating groups other than halogen are meta-directing. The halogens are ortho and para-directing deactivators.

CONCEPT MAP