If electrophilic aromatic substitution of a monosubstituted benzene is faster than that of benzene under identical conditions, the substituent in the monosubstituted benzene is called an activating group.

eg:

Under identical conditions, Reaction 2 is faster than Reaction 1. Thus, the methyl group is an activating group.

All activating groups are electron-donating groups.

Common activating groups:

\[ \text{OR} \quad (R = \text{H, alkyl, aryl, acyl}) \]

\[ \text{NR}_2 \quad (R = \text{H, alkyl, aryl, acyl, or any combination thereof}) \]

\[ \text{R} \quad (R = \text{alkyl, aryl}) \]

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Contributors

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