Bonding MO's are exactly filled.

Although this cation is delocalized and has \(4n+2\) \(\pi\) electrons, it is not aromatic since not all bonding orbitals are filled.

**Friedel-Crafts**

\[
\text{AlCl}_3 \rightarrow \text{alkene} \rightarrow \text{alkyl chloride} \rightarrow \text{alkyl cation} \rightarrow \text{skeletal cation}
\]

**Sulfonation**

\[
\text{H}_2\text{SO}_4 + \text{alkene} \rightarrow \text{alkyl sulfoxide} \rightarrow \text{alkyl sulfone}
\]

**Halogenation**

\[
\text{CCl}_3(\text{Br}_x) + \text{FeCl}_3 \rightarrow \text{alkene} + \text{FeCl}_3 \rightarrow \text{halogenated product}
\]
Phenol is an example of an ortho-para director, meaning that substitution is likely to occur almost exclusively at the ortho and para positions due to the stability of the intermediate that forms, as opposed to the meta position, which is not stabilized.
Nitrobenzene is an example of a meta director, meaning that substitution is likely to occur only at the meta position, since the intermediates formed by substitution at the ortho or para positions would be highly unfavorable.