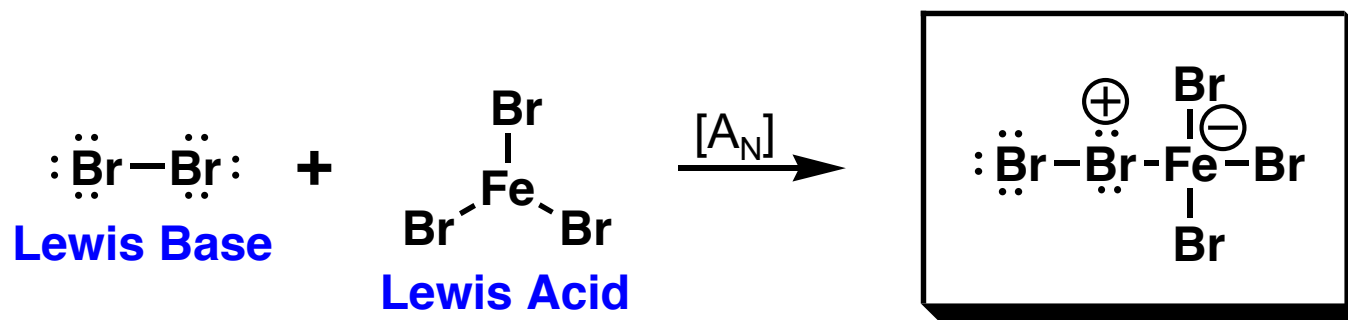
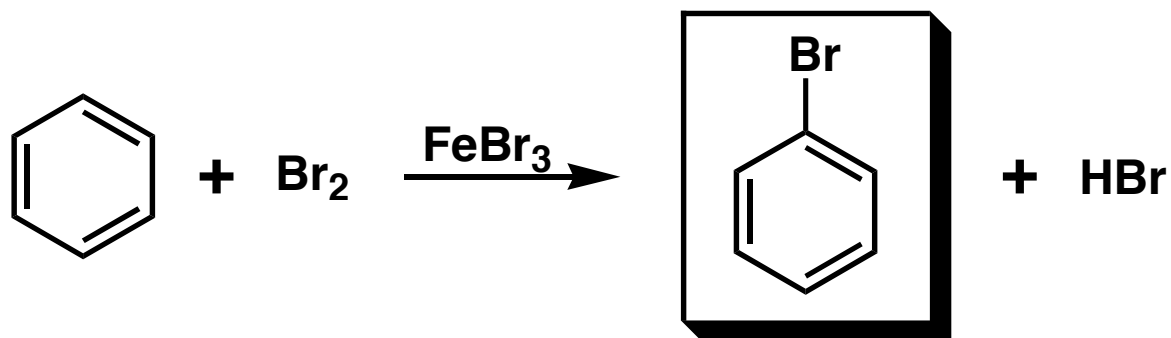


Electrophiles for Electrophilic Aromatic Substitution

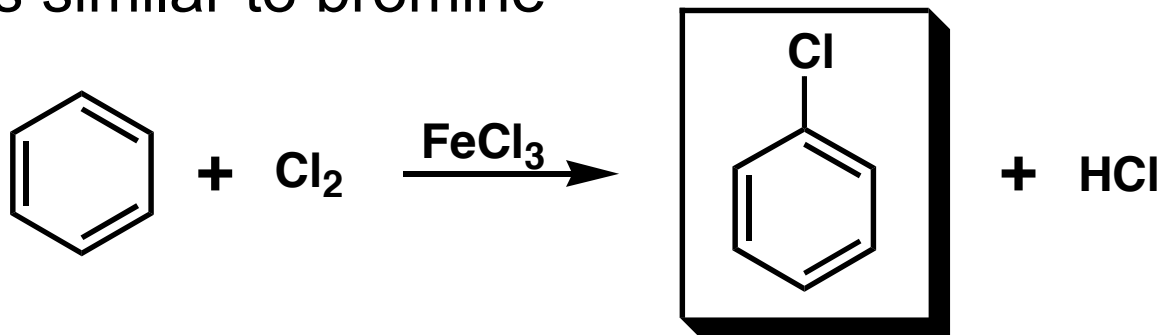
Bromination



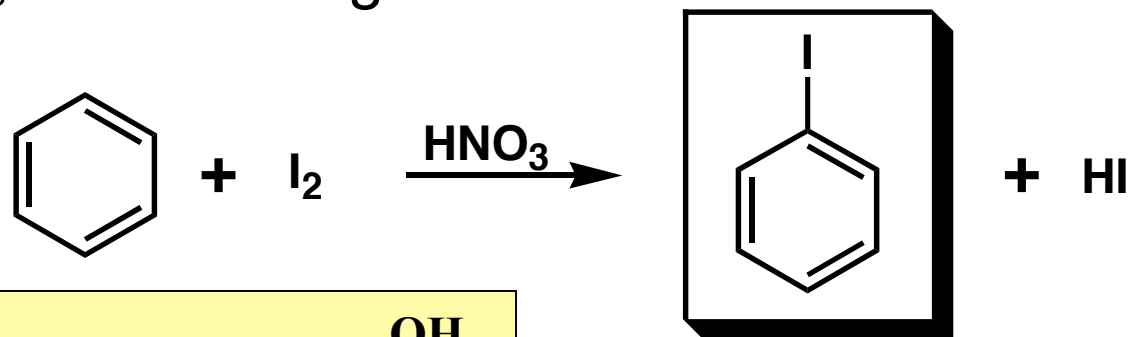
Electrophiles for Electrophilic Aromatic Substitution

Other Halogenations

Chlorine is similar to bromine

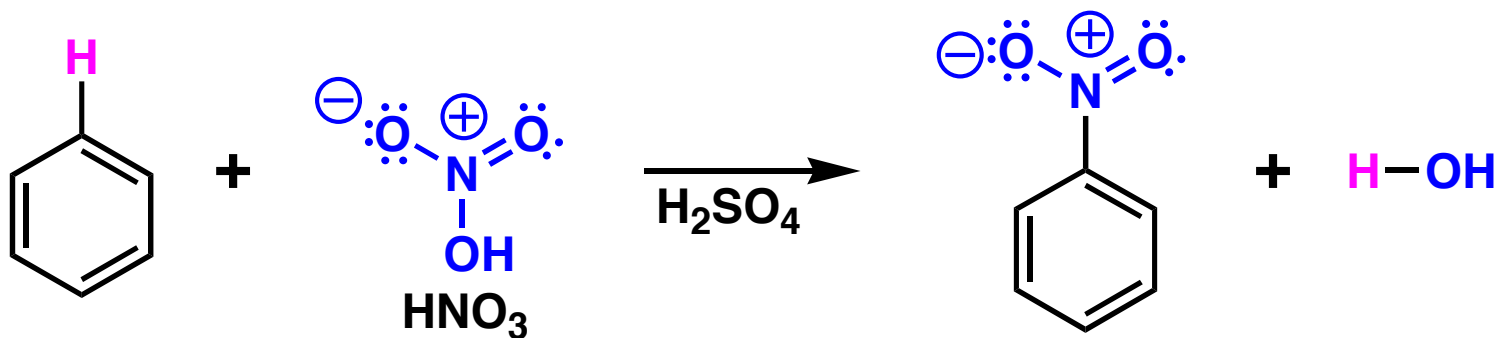


For iodine, the following conditions are used

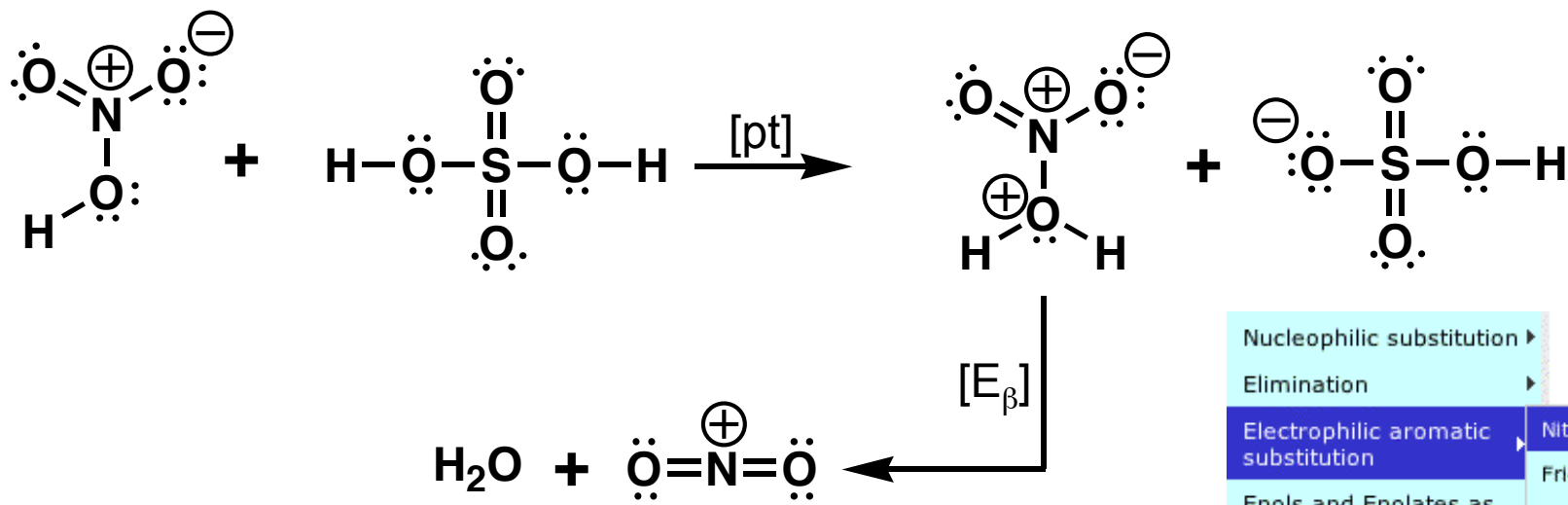


Here the active electrophilic species is presumed to be I^+

Nitration by Electrophilic Aromatic Substitution



The active electrophilic species is $\ddot{\text{O}}=\overset{\oplus}{\text{N}}=\ddot{\text{O}}$ (NO_2^{\oplus})
nitronium ion
How does it form?

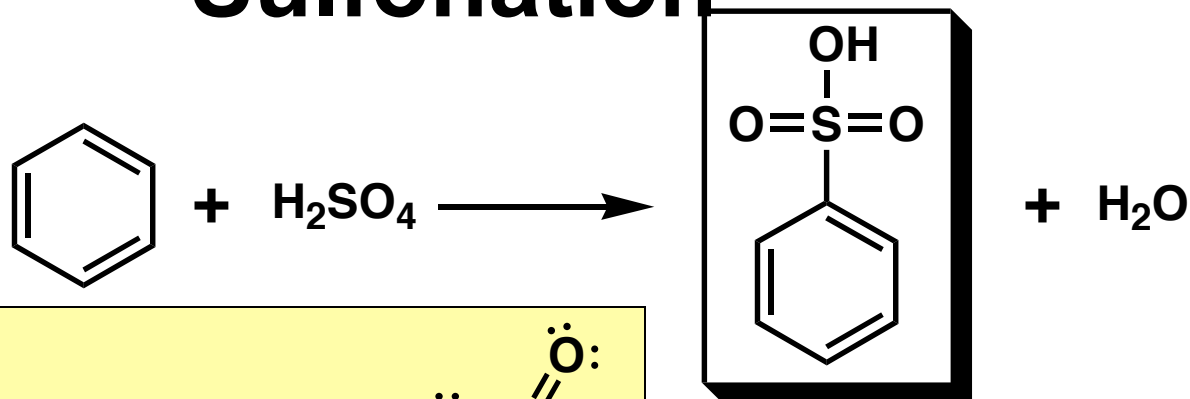


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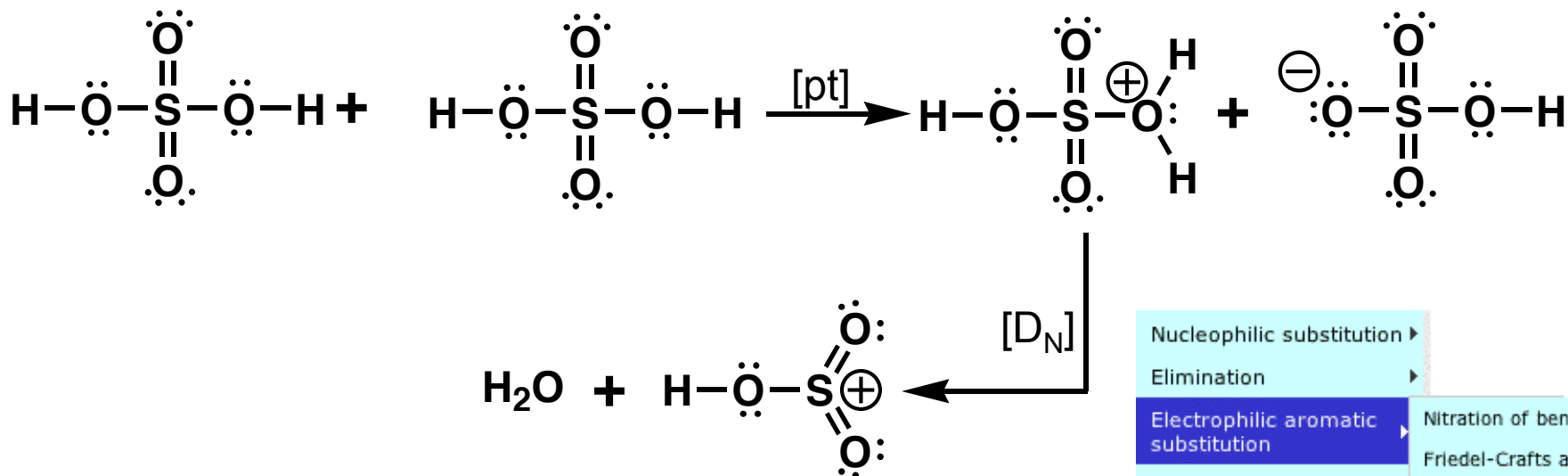
| | |
|---------------------------------------|---------------------------|
| Nucleophilic substitution ▶ | |
| Elimination ▶ | |
| Electrophilic aromatic substitution ▶ | Nitration of benzene |
| | Friedel-Crafts alkylation |
| | Friedel-Crafts acylation |
| | Sulfonation of benzene |
| Enols and Enolates as nucleophiles | |
| Pericyclic reactions | |

Electrophiles for Electrophilic Aromatic Substitution

Sulfonation



The active electrophilic species is $\text{H}-\ddot{\text{O}}-\overset{\oplus}{\text{S}}(\text{O})_2$
How does it form?



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- Nucleophilic substitution ▶
- Elimination ▶
- Electrophilic aromatic substitution ▶
 - Nitration of benzene
 - Friedel-Crafts alkylation
 - Friedel-Crafts acylation
 - Sulfonation of benzene
- Enols and Enolates as nucleophiles
- Pericyclic reactions