

## Chem 345 – Organic Reactions

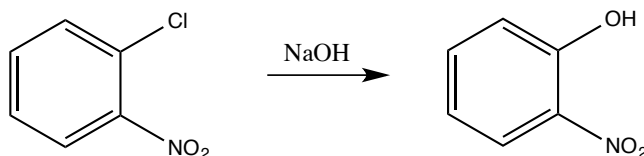
### Chapter 18

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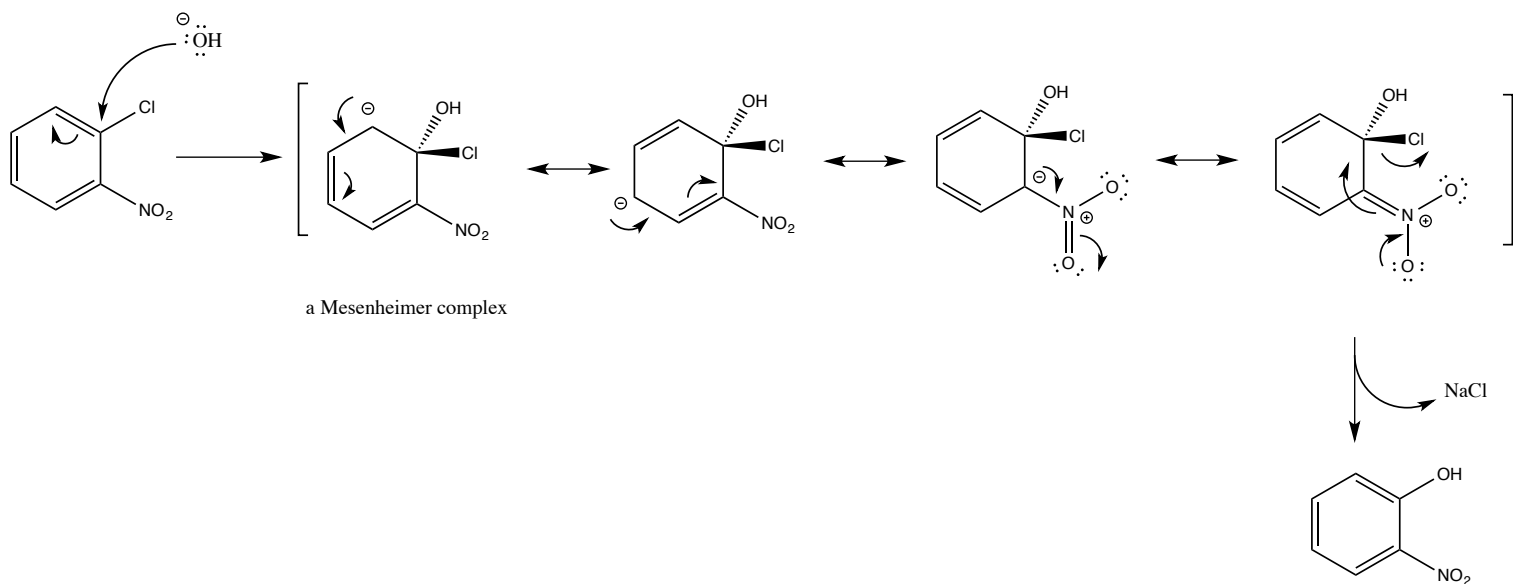
<http://www.chem.wisc.edu/areas/clc> (Resource page)

#### Nucleophilic Aromatic Substitution ( $S_NAr$ )

Reaction:



Mechanism:



For this reaction to occur the ring has to be deactivated with powerful electron-withdrawing groups. The intermediate of this nucleophilic substitution can be detected in some instances with spectroscopic methods and is called a *Meisenheimer complex*. This complex is stabilized by  $\pi$ -electron delocalization. The greater the electronegativity of the leaving group the faster the reaction, therefore the ranking for halogen substituents is:

