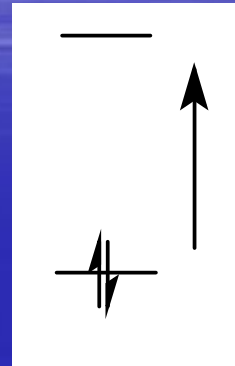


Dyes and Dyeing

染料-合成橘色染料

1. Chromophore:

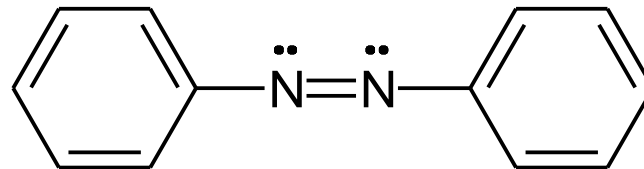


Transition

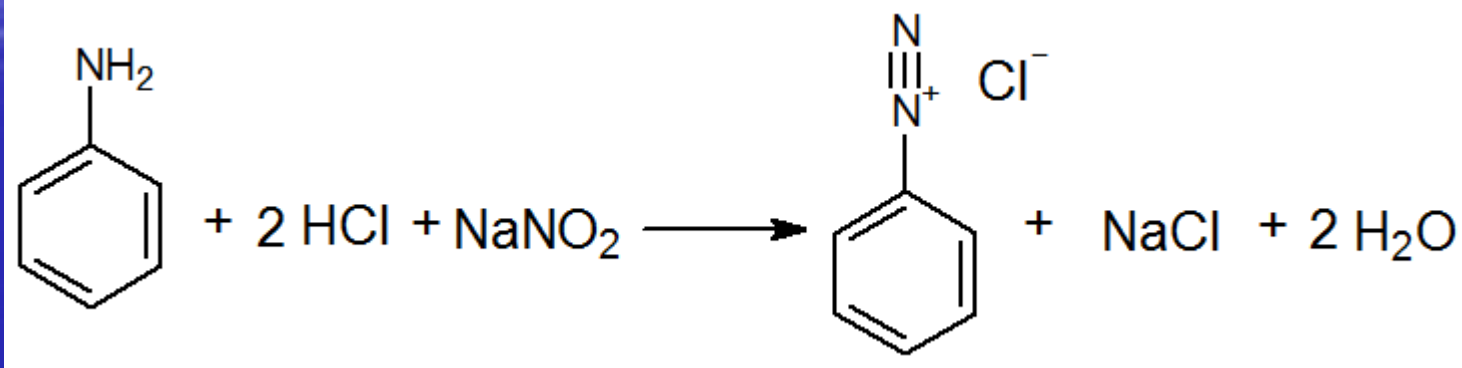
$\Delta E = h\nu$ visible region \rightarrow seen
 u.v. region \rightarrow u.v. light

of long-conjugation double bond $\uparrow \rightarrow \Delta E \downarrow$

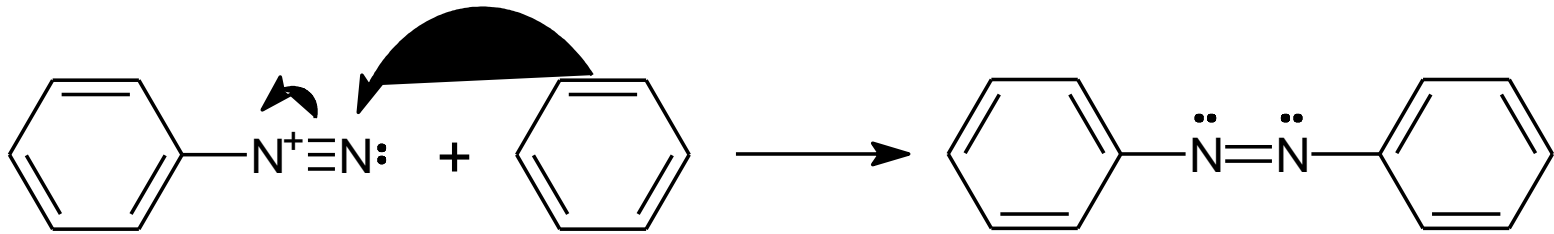
azo-compound:



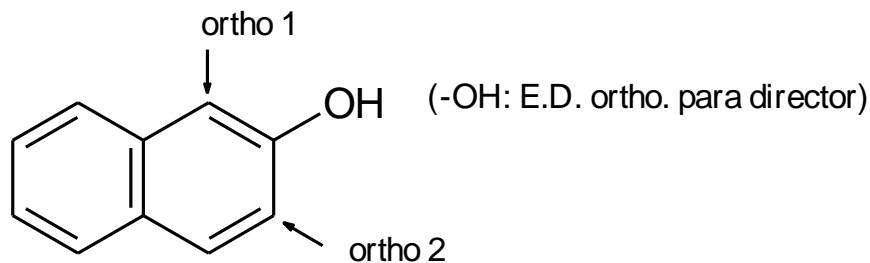
2. Diazotization of aniline:



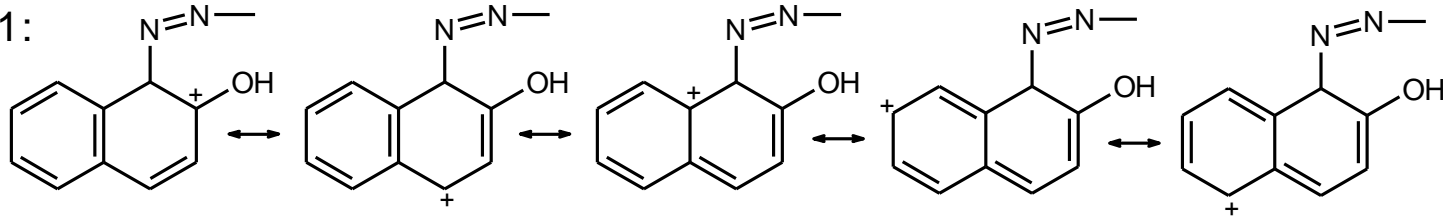
3. Electrophilic substitution of diazo compound:



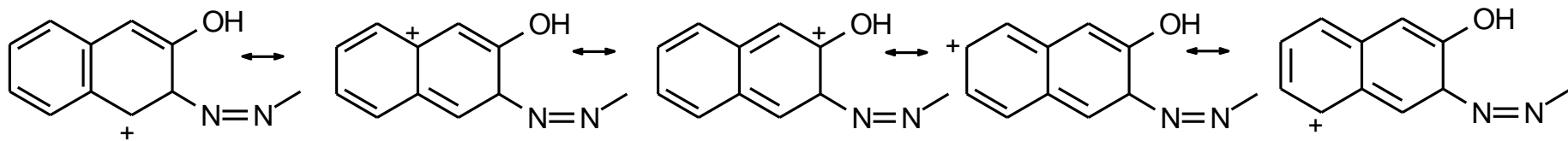
Electrophilic substitution of 2-hydroxynaphthalene



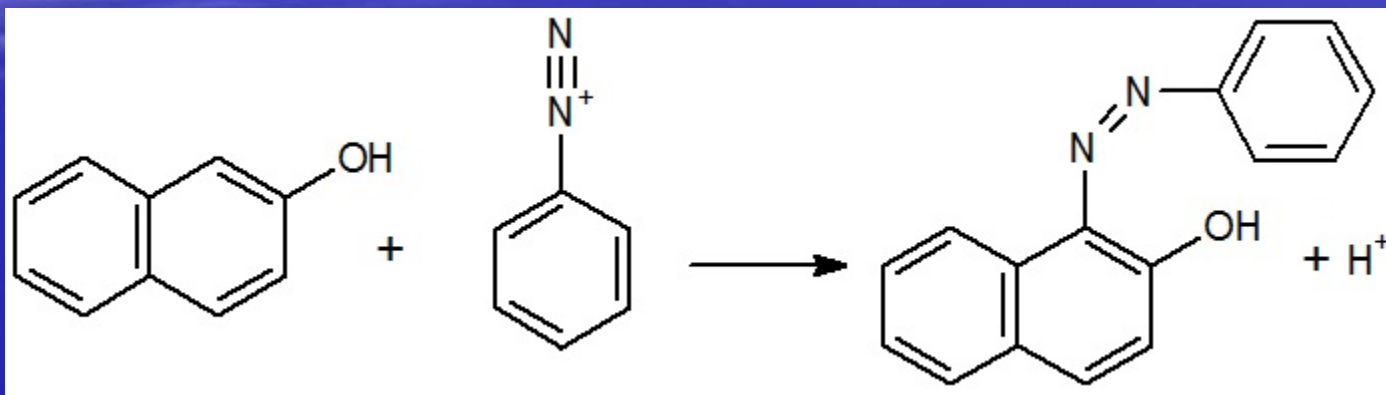
ortho 1:



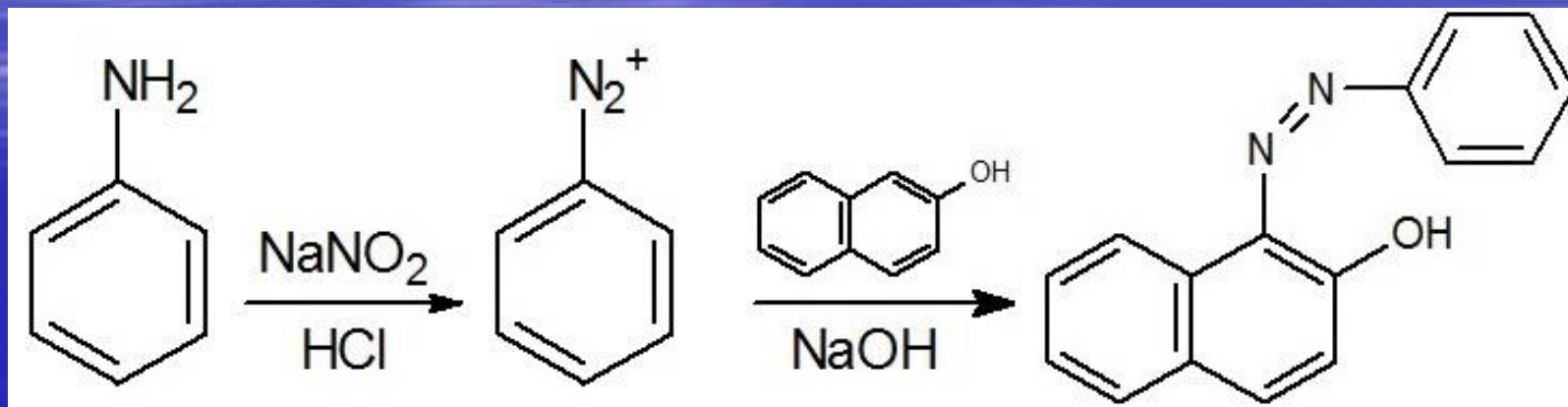
ortho 2:



☆ prefer to ortho 1



Reaction equation



0.65mL ailine + 10mL H₂O in a 50mL Erlenmeyer flask



add 0.48g NaNO₂ slowly



stir until dissolve

↓ (ice-water bath)

**pour the solution into a [6.25mL ice water & 1.25mL HCl]
mixture**



the result solution stand at ambient temp. for 5 minutes



white diazo crystal suspension

↓
pour into the beaker containing [0.9g 2-hydroxynaphthalene
+ 5mL cold 10% NaOH(aq)]

↓ (deep red)
rinse the Erlenmeyer flask with 1mL H₂O

↓
swirl the crystalline paste thoroughly to effect good mixing
for 5~10min

↓ (orange)
add 2.5g NaCl(s)

↓
heat to dissolve the solid

↓
cool the solution in an ice-water bath



suction filter [wash the product with cold NaCl(sat'd,aq)]



dry



weight



calculate the % yield (in result report)

Check out

1. 將過濾廢液倒到”水溶液”廢液桶。
2. 小心染料沾染不易清洗。
3. 器材需清洗乾淨,置於各組器材櫃。
4. 請小助教檢查器材櫃,評分後,鑰匙交回方可離開。