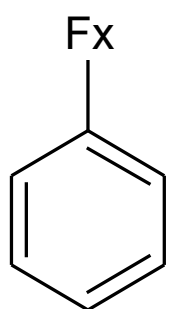
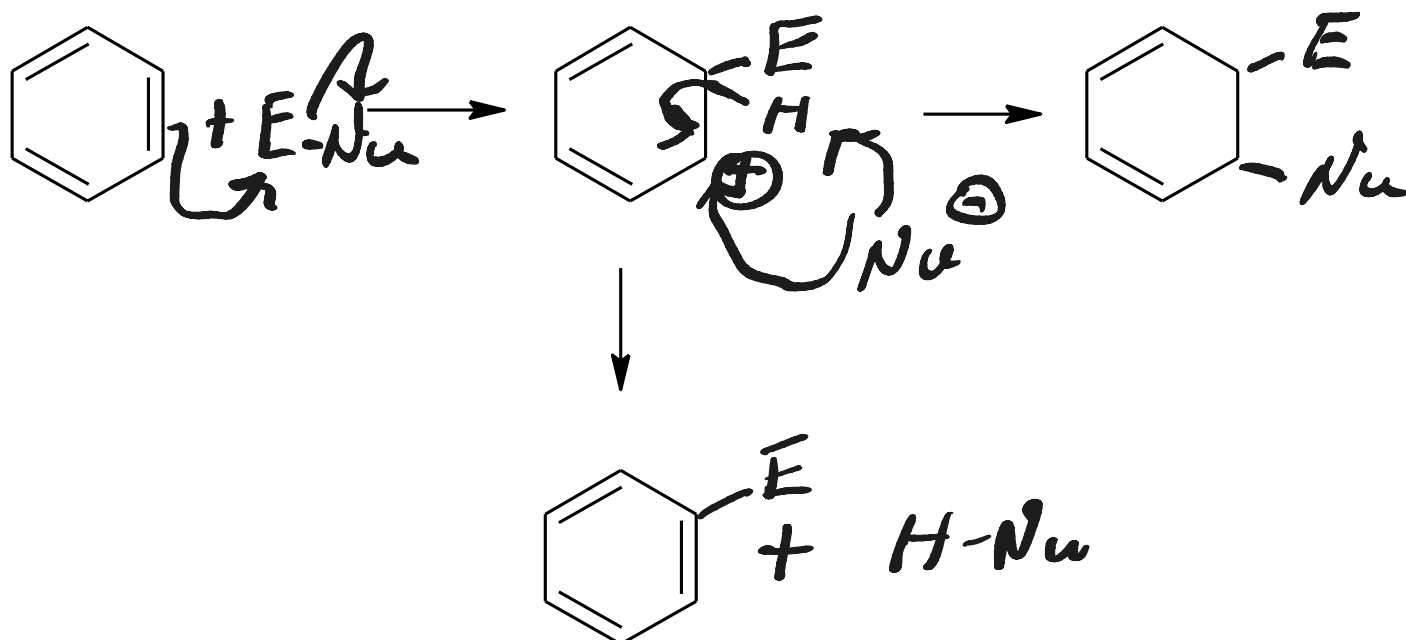


Electrophilic Aromatic Substitution

220 C

8/10/26

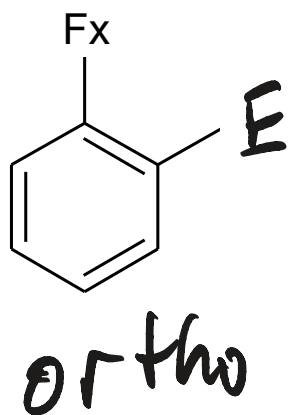


1. Rate

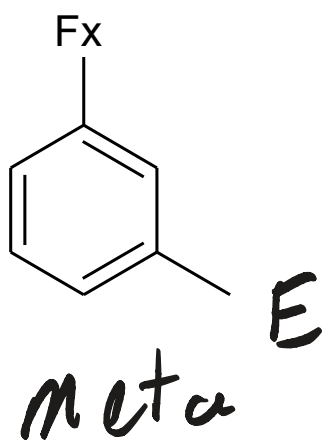
$\ominus$ withdrawing deactivator
meta

2. direction

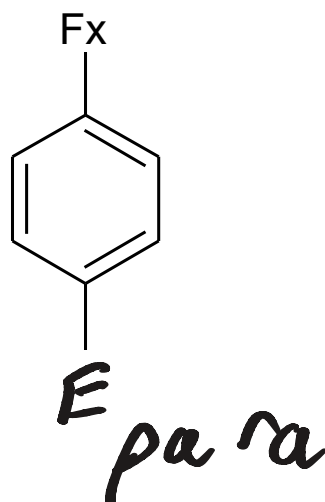
$\ominus$ donating activator
ortho, para



ortho

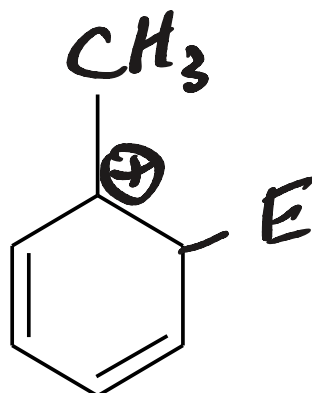
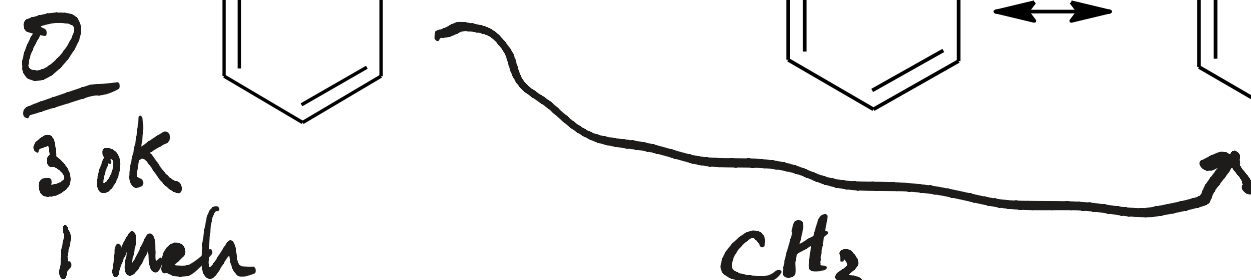
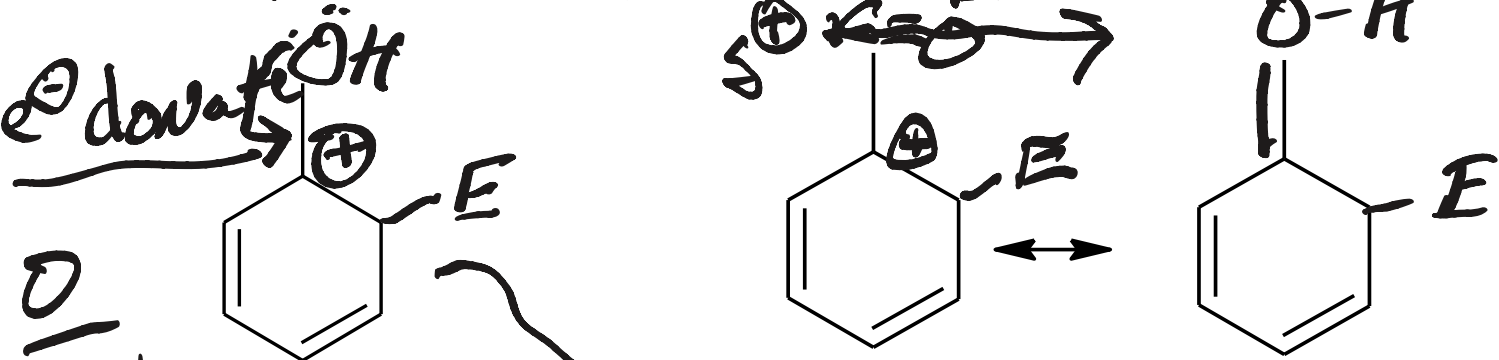
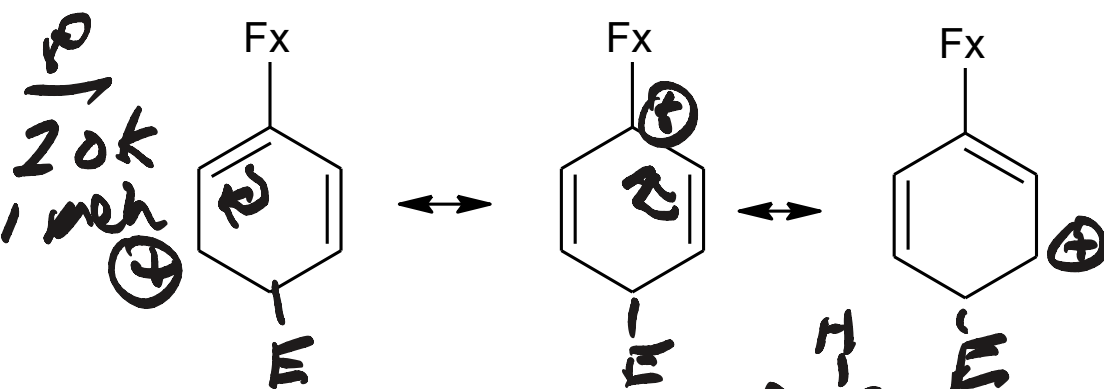
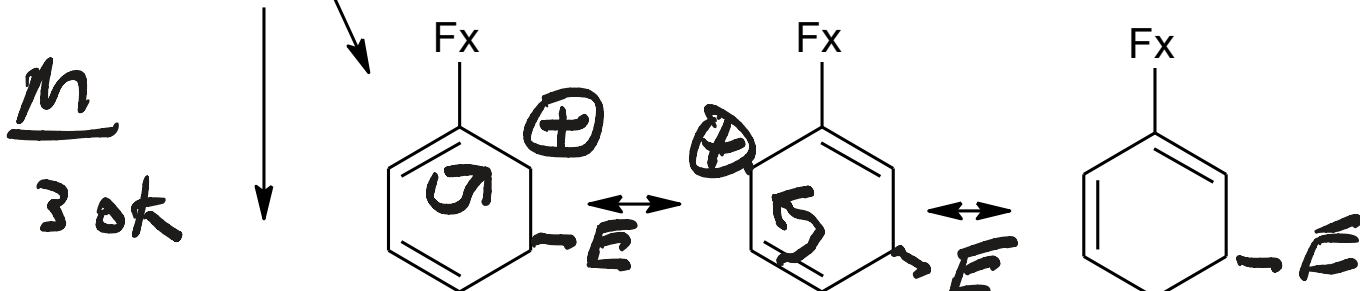
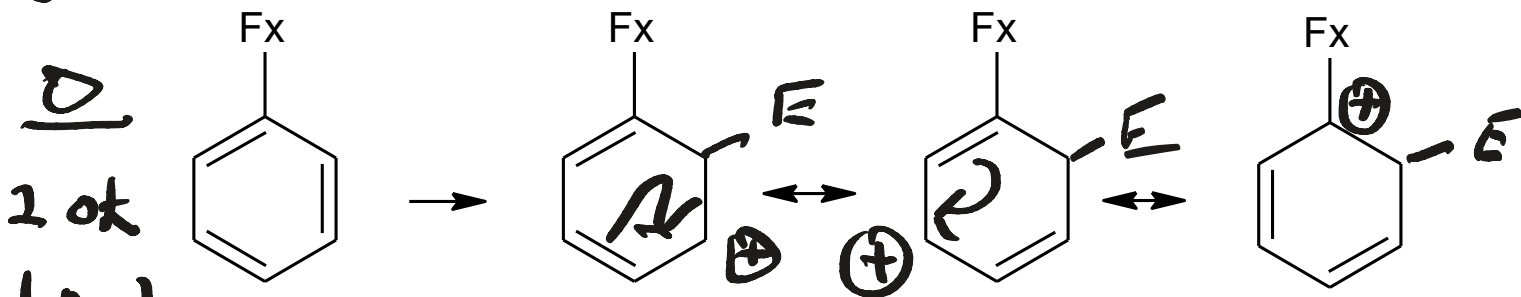


meta



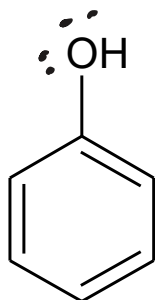
para

e^- withdraw



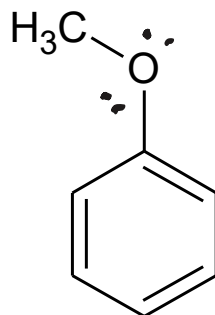
D
2 ok
1 awesome

Relative Rates of Bromination



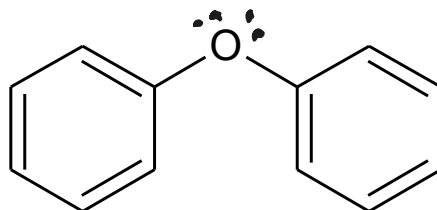
Phenol

1



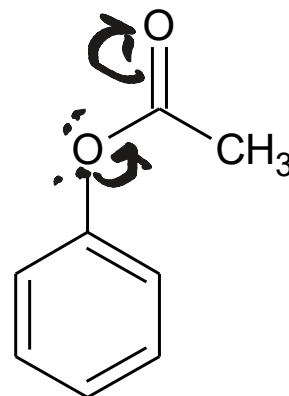
Anisole

2



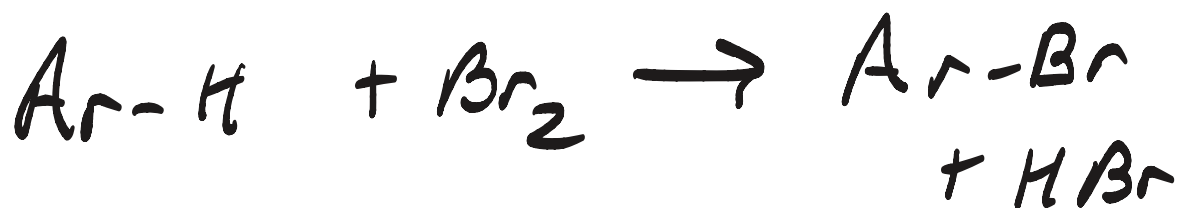
Diphenyl Ether

3



Phenyl Acetate

4

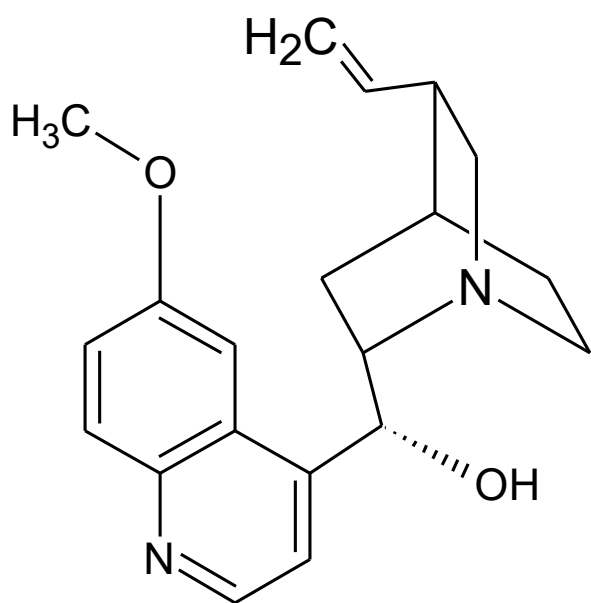


15 M acetic acid

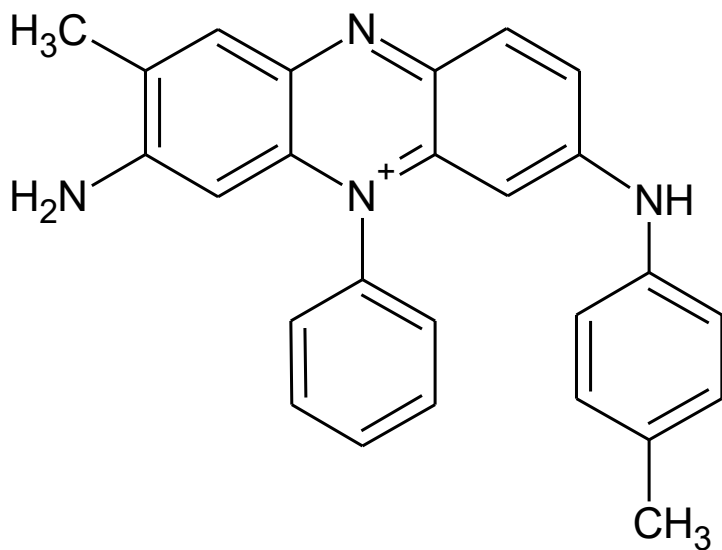


Azo Violet Synthesis

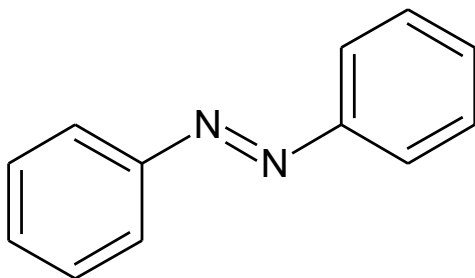
dye



quinine



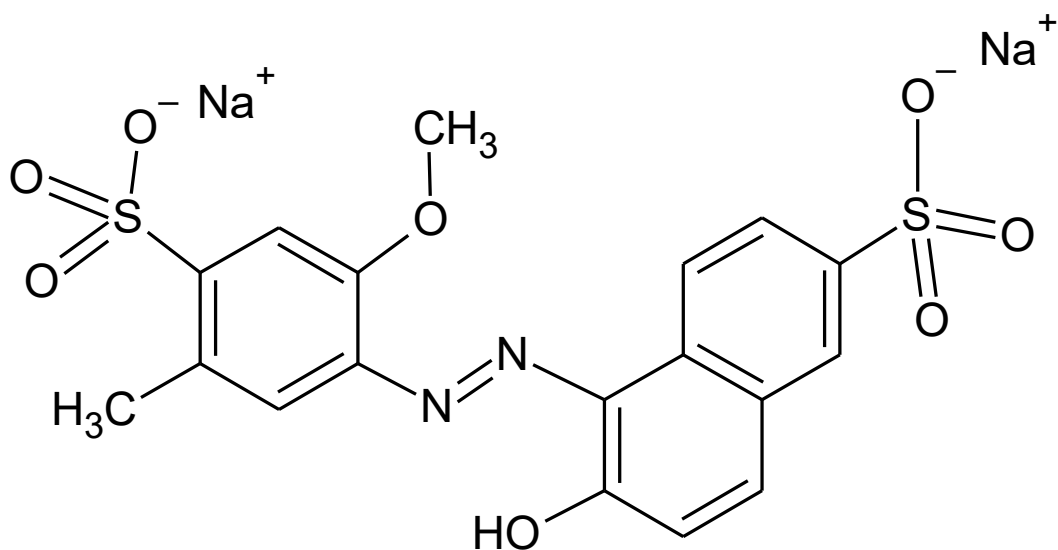
mavine



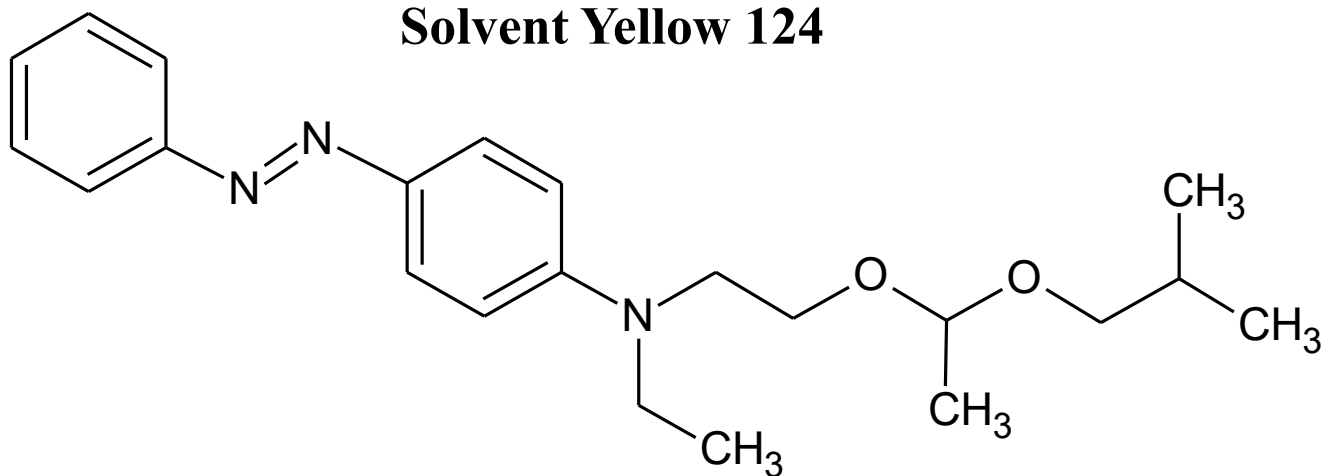
Azo dyes

A	- Acid orange 5 - Acid orange 7 - Acid orange 19 - Acid orange 20 - Acid red 13 - Acid red 88 - Alcian yellow - Alizarine Yellow R - Allura Red AC - Amaranth (dye) - Amido black 10B	N	Naphthol AS
B	- Basic Red 18 - Biebrich scarlet - Bismarck brown Y - Black 7984 - Brilliant Black BN - Brown FK - Brown HT	O	- Oil Red O - Orange B - Orange G - Orange GGN
C	- Calconcarboxylic acid - Chrysoine resorcinol - Chrysophenine - Citrus Red 2 - Congo red	P	- Para red - Pigment Yellow 10 - Ponceau 2R - Ponceau 3R - Ponceau 4R - Ponceau 6R - Ponceau S - Prontosil
D	- D&C Red 33 - Direct Blue 1 - Direct Blue 15 - Direct Yellow 4 - Disperse Orange 1	R	Red 2G
E	- Eriochrome Black T - Evans blue (dye)	S	- Scarlet GN - Sirius Red - Solvent Black 3 - Solvent Red 26 - Solvent Yellow 56 - Solvent Yellow 124 - Sudan I - Sudan II - Sudan III - Sudan IV - Sudan Red 7B - Sudan Red G - Sudan stain - Sudan Yellow 3G - Sulfarsazene - Sunset yellow FCF
F	Fast Yellow AB	T	- Tartrazine - Tropaeolin - Trypan blue
G	Glycoazodyes	Y	Yellow 2G
H	Hydroxynaphthol blue		
M	- Metal-complex dyes - Metanil Yellow - Methyl orange - Methyl red		

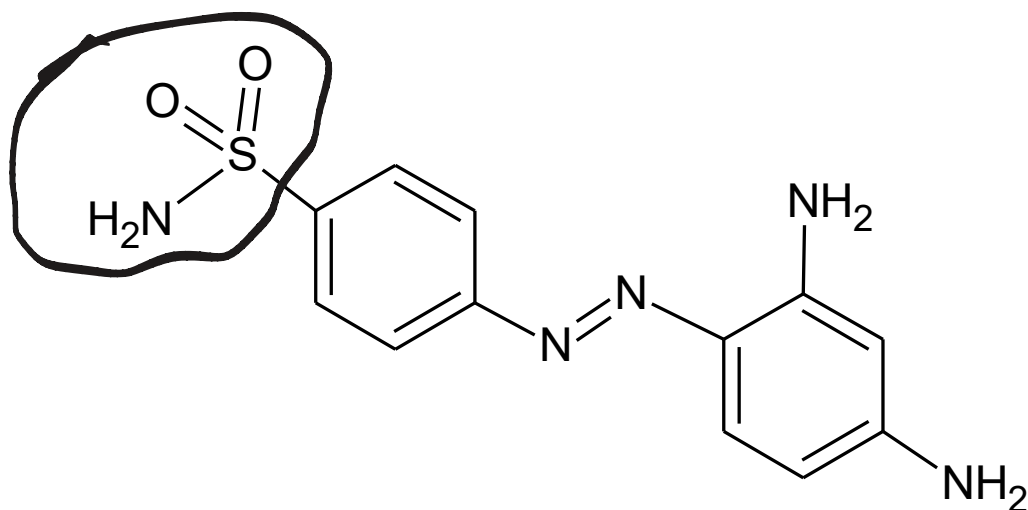
Allura Red



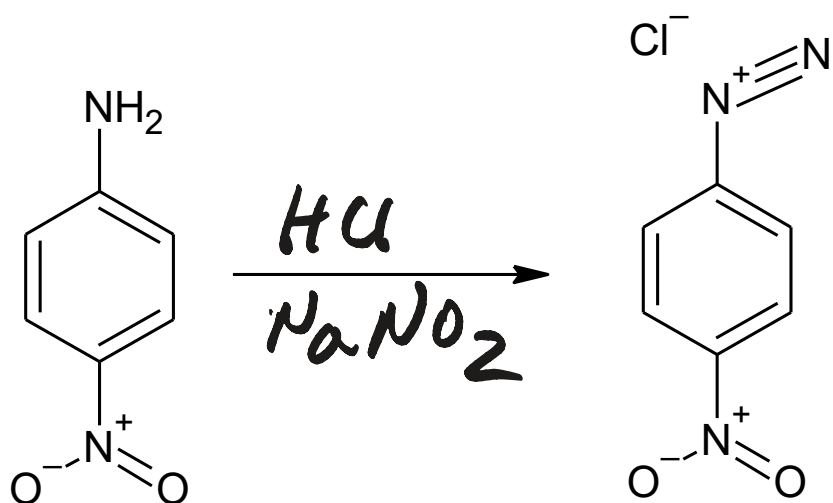
Solvent Yellow 124



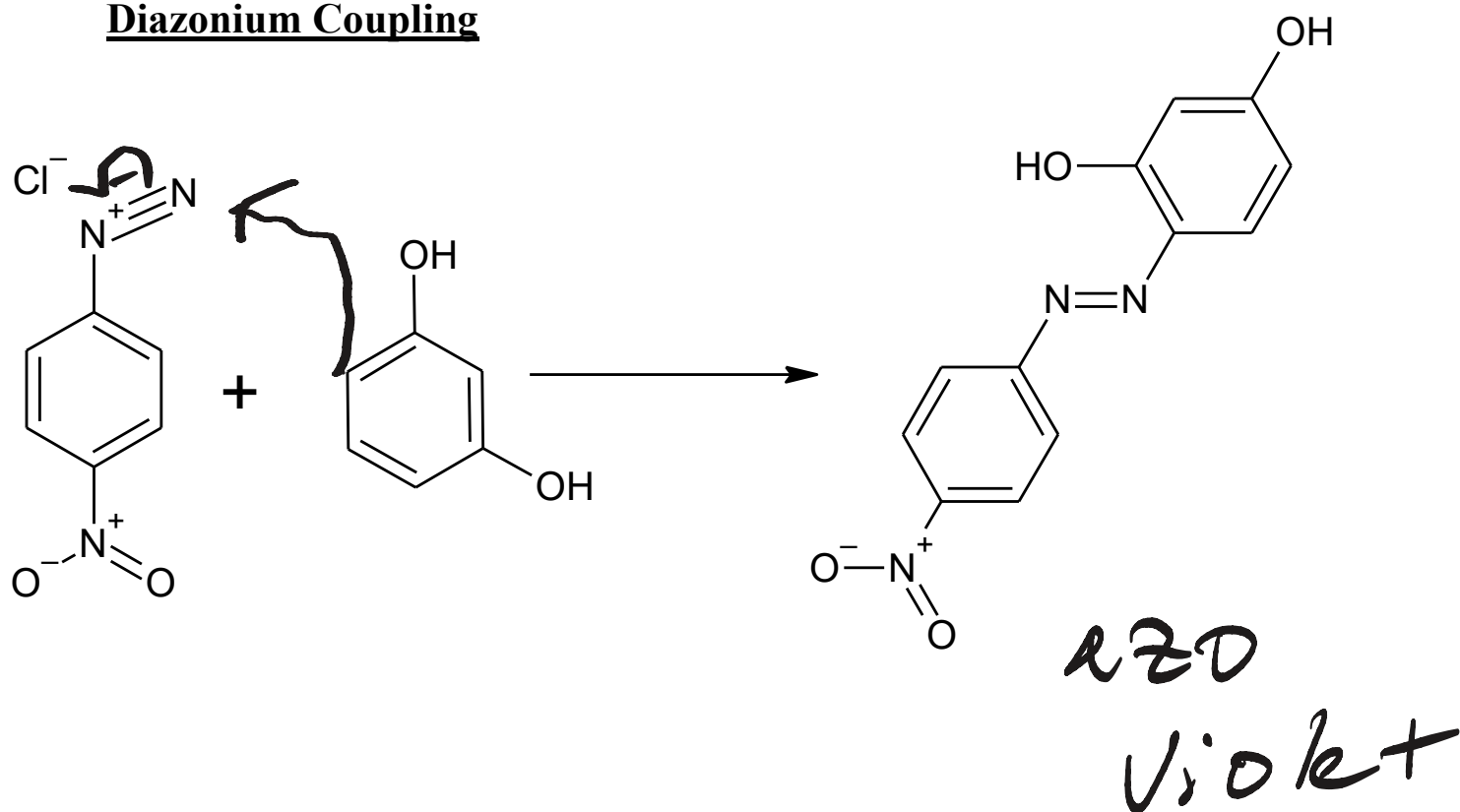
Prontosil

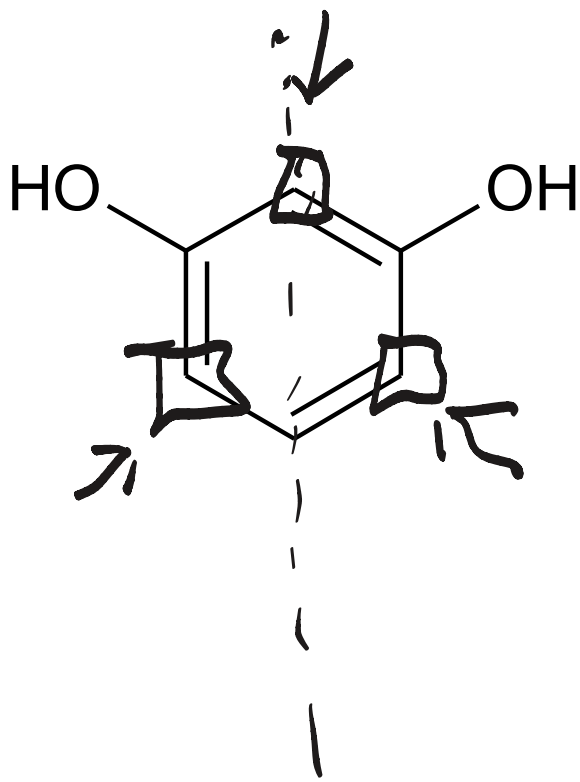


Diazotization



Diazonium Coupling





Burnt
Orange

dye cotton

pH	acidic	Orange
	Basic	purple