

# OCR (A) Chemistry A-level

## Topic 6.2.4 - Carbon-Carbon Bond Formation

### Flashcards

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What type of mechanism is involved in the reaction between haloalkanes and cyanide ions?



What type of mechanism is involved in the reaction between haloalkanes and cyanide ions?

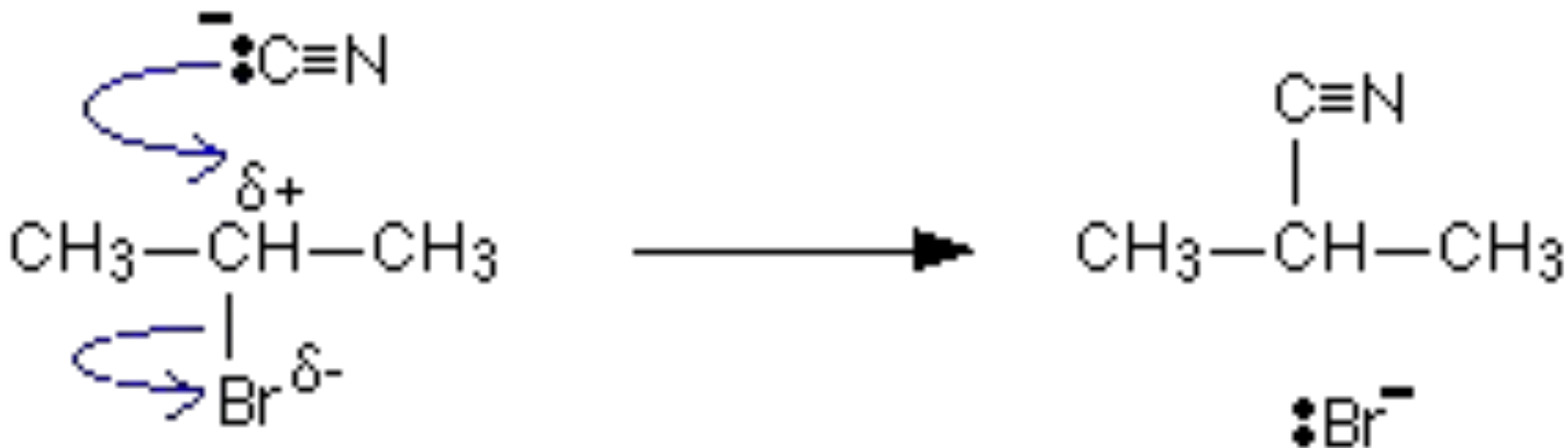
# Nucleophilic substitution



Draw the mechanism of the reaction  
between 2-bromopropane  
with cyanide ions.



Draw the mechanism of the reaction between 2-bromopropane with cyanide ions.



What type of reaction is involved in the reaction between carbonyl compounds and cyanide ions?



What type of reaction is involved in the reaction between carbonyl compounds and cyanide ions?

# Nucleophilic addition

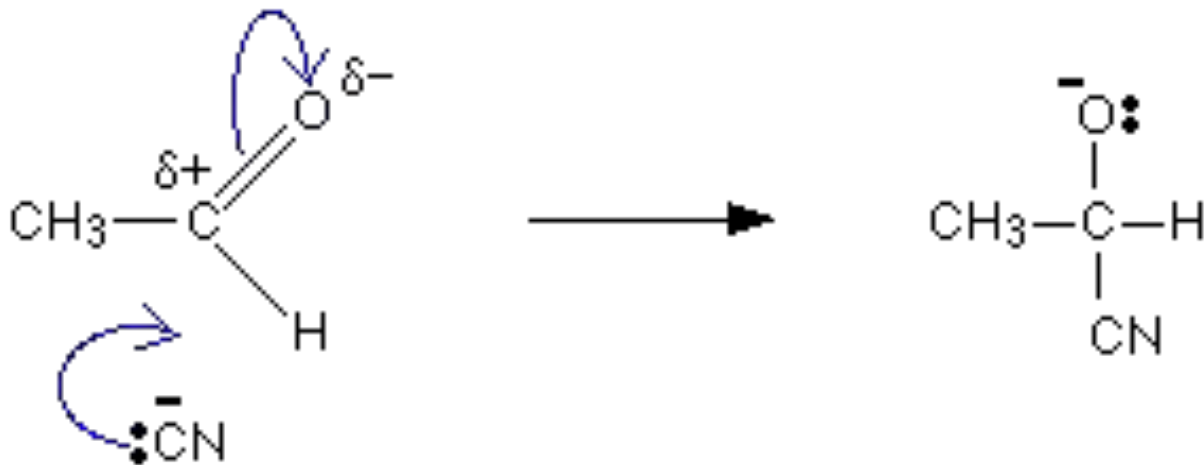


Outline the mechanism for the reaction of ethanal and cyanide.





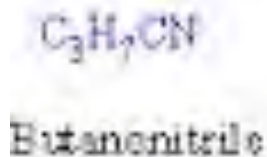
Outline the mechanism for the reaction of ethanal and cyanide.



Write an equation for the reaction of the reduction to butanenitrile.



Write an equation for the reaction of the reduction to butanenitrile.



Butan-1-amine



How can you form a  
carboxylic acid from a  
nitrile?



How can you form a carboxylic acid from a nitrile?

# Acid hydrolysis



What type of catalyst is used for a Friedel-Crafts reaction?



What type of catalyst is used for a Friedel-Crafts reaction?

A halogen carrier (e.g.  $\text{AlCl}_3$ )



Write an equation to form an electrophile that could be used to acylate benzene, starting with  $\text{AlCl}_3$  and  $\text{RCOCl}$ .





Write an equation to form an electrophile that could be used to acylate benzene, starting with  $\text{AlCl}_3$  and  $\text{RCOCl}$ .



$\text{RCO}^+$  can attack benzene



How could you use a  
Friedel-Crafts mechanism to  
add a methyl group to a  
benzene ring?



How could you use a Friedel-Crafts mechanism to add a methyl group to a benzene ring?

Use a halogenoalkane and  $\text{AlCl}_3$  to create an electrophile that can attack benzene



Draw the mechanism for the alkylation of benzene.



Draw the mechanism for the alkylation of benzene.

