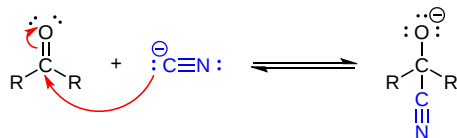
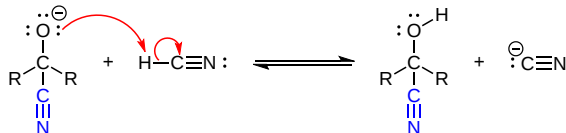




## STEP 1: NUCLEOPHILIC ATTACK

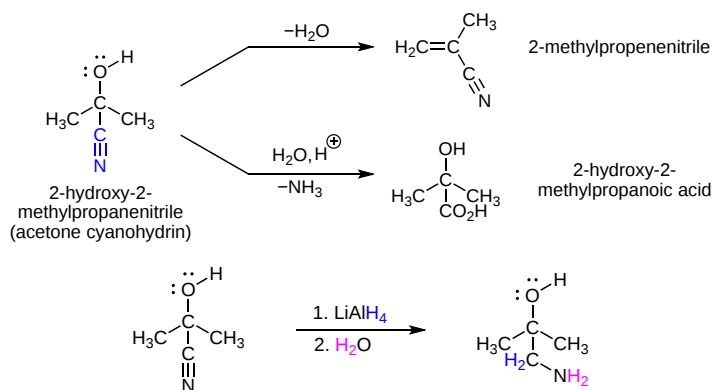


## STEP 2: PROTONATION



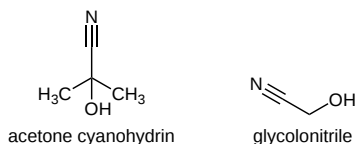
## FURTHER CHEMISTRY OF CYANOHYDRINS

Cyanohydrin functional groups often prove useful because of the further chemistry that can be carried out due to the presence of a hydroxyl and a nitrile functionality. In particular, dehydration can convert the hydroxyl group into an alkene ([Section 17.6](#)). The nitrile can be converted into a carboxylic acid function group through reaction with a hot acidic aqueous solution ([Section 20.7](#)). Also, the nitrile can be reduced by the addition of  $\text{LiAlH}_4$  to form a primary amine.



## OTHER CYANOHYDRINS

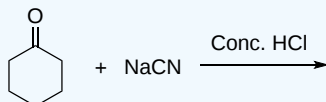
Other interesting cyanohydrins are: **acetone cyanohydrin**, and **glycolonitrile**.



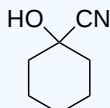
Acetone cyanohydrin has the structure,  $(\text{CH}_3)_2\text{C}(\text{OH})\text{CN}$ , and is used in the production of methyl methacrylate (also known as acrylic). Glycolonitrile is an organic compound with the structural formula of  $\text{HOCH}_2\text{CN}$ , which is the simplest cyanohydrin that is derived by formaldehydes.

### ? EXERCISE 19.6.1

Complete the following reaction for cyanohydrins.

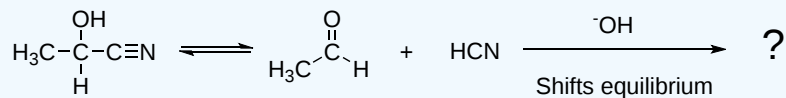


Answer

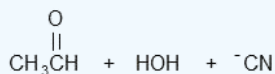


### ? EXERCISE 19.6.2

Complete the following reaction for cyanohydrins.



**Answer**



### ? EXERCISE 19.6.3

True or False: For a cyanohydrin to form, a *fast addition* of strong acid to cyanide salt is carried out to convert the salt into HCN.

**Answer**

False, slow addition

### ? EXERCISE 19.6.4

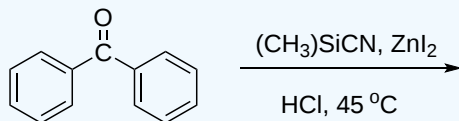
True or False: Cyanohydrin reactions are *irreversible*.

**Answer**

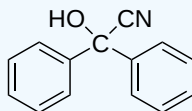
False, reversible

### ? EXERCISE 19.6.5

What is the product for the overall reaction?



**Answer**



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