Answer on Question #38231-Chemistry-Inorganic Chemistry

Question

What happens when ethanoic acid reacts with sodium?

Answer

When ethanoic acid reacts with sodium metal, the latter will reduce the ethanoic acid to acetaldehyde:

$$H_3C$$
 $\stackrel{O}{\longleftarrow}$ + 2 Na $\stackrel{\longrightarrow}{\longrightarrow}$ H_3C $\stackrel{O}{\longleftarrow}$ + Na₂O acetaldehyde

At this reaction sodium metal is dissolved transforming into sodium oxide. This reaction is dominant. However, sodium ethanoate (or sodium acetate) formation may also occur:

$$2 H_3C \stackrel{O}{\swarrow} + 2 Na \longrightarrow 2 H_3C \stackrel{O}{\swarrow} + H_2$$

sodium acetate

At this reaction sodium metal is dissolved and hydrogen gas is evolved.