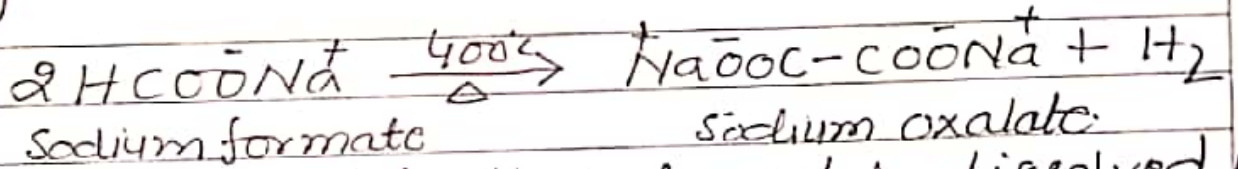


Oxalic acid :->

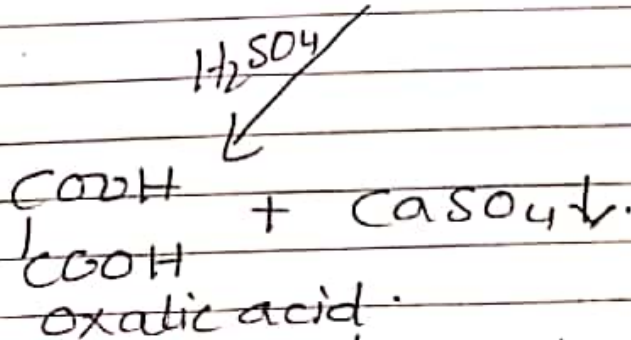
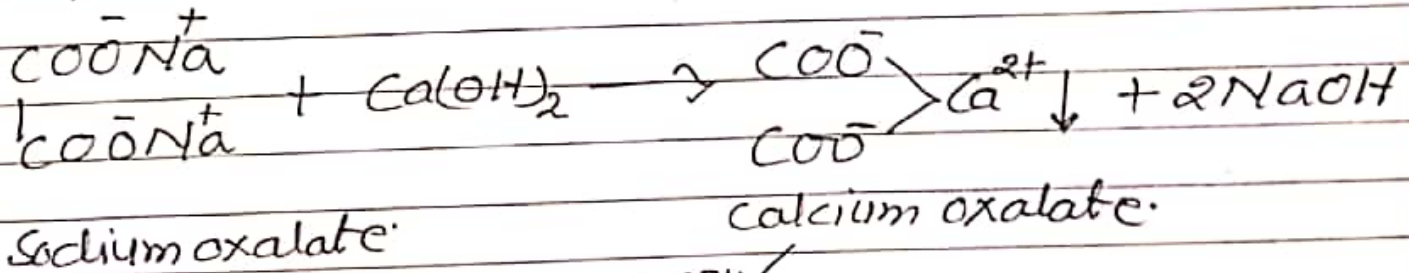
It occurs as potassium hydrogen oxalate in the wood sorrel, rhubarb and tomatoes. The insoluble calcium oxalate is found in some stony deposits in kidneys and bladder in human body.

Manufacture :->

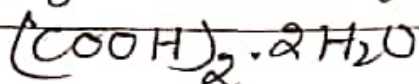
oxalic acid is made industrially by heating sodium formate at 400°C



The sodium oxalate thus formed is dissolved in water and calcium hydroxide added to precipitate calcium oxalate. The solution is filtered and the filtrate treated with calculated quantity of dilute sulphuric acid to liberate oxalic acid.



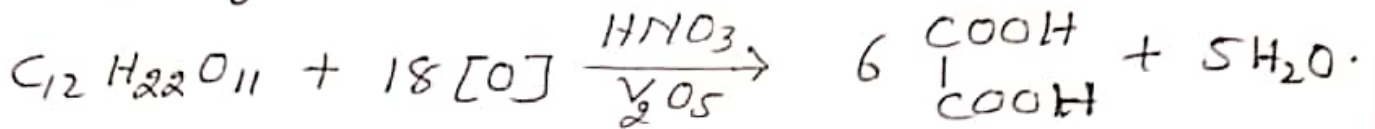
Calcium sulphate precipitates and oxalic acid is crystallised from the filtrate as the hydrate



Teacher's Signature: _____

Laboratory Method :->

In the laboratory, oxalic acid is made by oxidation of sucrose or molasses with concentrated nitric acid in the presence of vanadium pentoxide as catalyst.

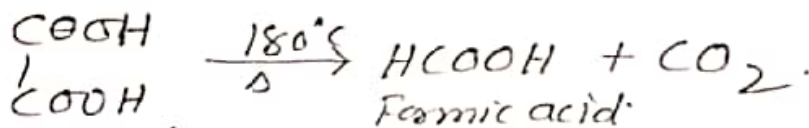


The $-CHOH \cdot CHOH-$ units present in sucrose molecule are split out and oxidised to oxalic acid.

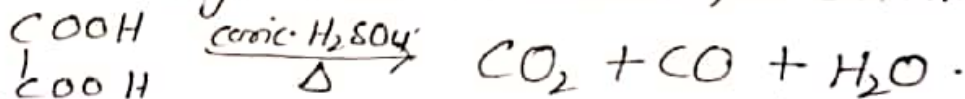
Properties :->

Oxalic acid is made of two carboxyl groups in direct union. It gives all the usual reactions of COOH group twice. Also the acid gives some peculiar reactions which involves the cleavage of the weakened linkage between the two highly oxidised carbon atoms.

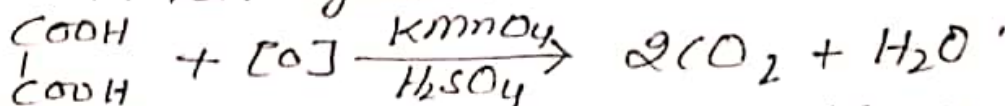
- (i) Action of heat :-> When heated at $150^\circ C$, it decarboxylates to formic acid.



- (ii) Action with H_2SO_4 :-> When heated with conc H_2SO_4 , it decomposed to give carbon dioxide, carbon monoxide and water.



- (iii) Oxidation :-> It is readily oxidised with acidified Potassium Permanganate.



Uses :-> (i) For removing ink stains and for bleaching straw for hats.

- (ii) As a mordant in dyeing and calico printing.
 (iii) In manufacture of inks and metal polishes.
 (iv) In redox reaction. (v) For preparing alkyl alcohol and potassium oxalate in laboratory.