

SUBJECT - CHEMISTRY

CLASS - B.Sc (Hons) PART-II

PAPER - IV GROUP-B

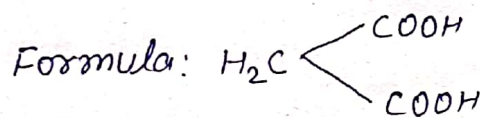
TOPIC - The Preparation and Properties of malonic acid

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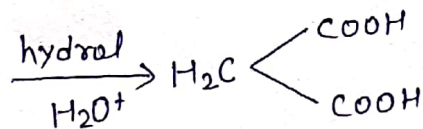
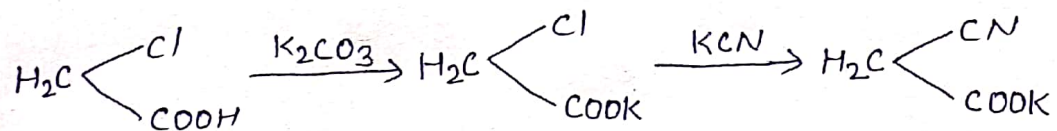
Q Describe the Preparation and Properties of (a) malonic acid
MALONIC ACID:



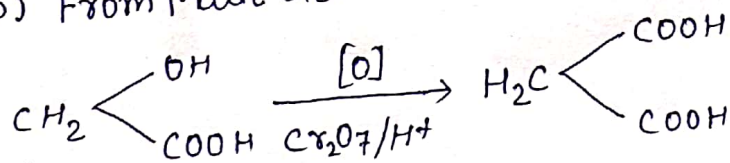
IUPAC name: Propane dioic acid

Preparation:

(a) From chloroacetic acid

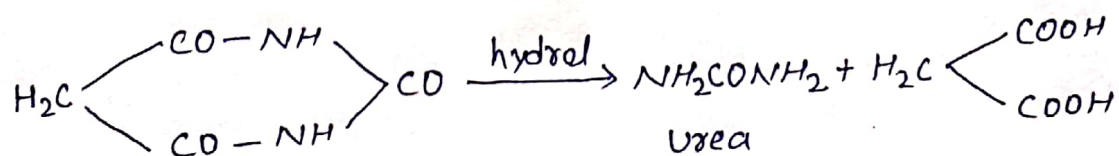


(b) From Malic acid



Malic acid

(c) From Barbutaric acid (malonyl urea):

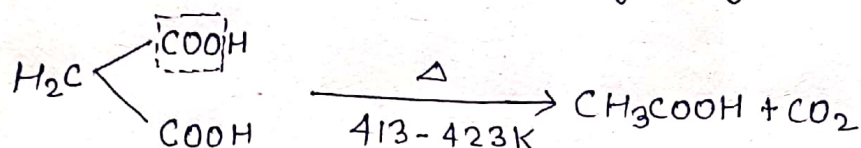


Malonyl urea.

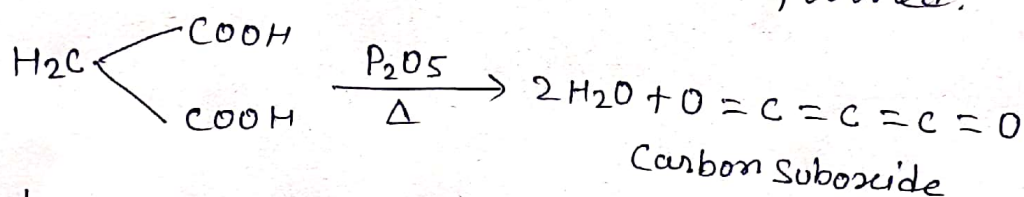
Properties:

(1) It is a crystalline solid m.p. 136° , Soluble in water and alcohol but insoluble in ether

(2) Action of heat: On heating, it gives CO_2 and ethanoic acid

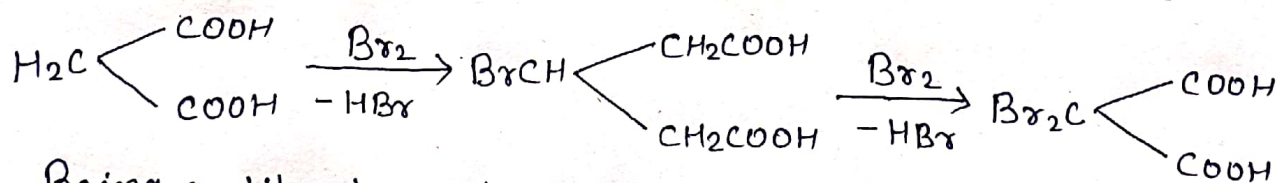


(3) Action of P_2O_5 : when malonic acid is heated with P_2O_5 a small amount of Carbon Suboxide is formed:



When carbon suboxide is dissolved in water, malonic acid is obtained. Hence carbon suboxide is anhydride of malonic acid

4. Action of halogen: The H-atom of CH_2 group may be replaced by halogen atoms in malonic acid as these are acidic:



5. Being a dibasic acid, it forms two series of acid chlorides, esters and amides

