CLAIMS

1 A process for the production of methacrylic acid by the base catalysed decarboxylation of at least one dicarboxylic acid selected from itaconic, citraconic or mesaconic acid or mixtures thereof, wherein the decarboxylation is carried out at greater than 240 and up to 275°C and at pressures which maintain the reactants in the liquid phase.

2 A process according to claim 1, wherein the decarboxylation is in the temperature range between 245 and up to 275°C.

3 A process according to any of claims 1 or 2, wherein the dicarboxylic acid reactants and preferably the base catalyst are in aqueous solution.

4 A process according to any of claims 1 to 3 wherein the decarboxylation reaction is carried out at ~~suitable~~ pressures in excess of atmospheric pressure.

5 A process according to any of claims 1 to 4, wherein the base catalyst comprises a metal oxide, hydroxide, carbonate, acetate (ethanoate), alkoxide, hydrogencarbonate or salt of a decomposable di- or tri-carboxylic acid, or a quaternary ammonium compound of one of the above, or one or more amines.

6 A process according to any of claims 1 to 5, wherein the base catalyst is selected from one or more of the following: LiOH, NaOH, KOH, $Mg(OH)_2$, $Ca(OH)_2$, $Ba(OH)_2$, CsOH, $Sr(OH)_2$, RbOH, NH_4OH, Li_2CO_3, Na_2CO_3, K_2CO_3, Rb_2CO_3,

to a ~~sufficiently high~~ temperature of less than 350°C to provide itaconic, mesaconic and/or citraconic acid; and a process according to any of claims 1-8 to provide methacrylic acid.

13 A process according to any of claims 1 to 12, wherein the concentration of the dicarboxylic acid reactant(s) is at least 0.1M.

14 A process according to any of claim 1 to 13, wherein the concentration of the catalyst in the reaction mixture is at least 0.1M.

15 A process for the production of methacrylic acid by the base catalysed decarboxylation of at least one dicarboxylic acid selected from itaconic, citraconic or mesaconic acid or mixtures thereof, wherein the decarboxylation is carried out in the temperature range between 240 and 290°C and the dicarboxylic acid(s) reactant(s) are exposed to the reaction conditions for a time period of at least 80 seconds.