

ALIEN PROPERTY CUSTODIAN

PROCESS FOR THE PREPARATION OF FATTY ACIDS FROM PRODUCTS OF THE CARBON OXIDE HYDROGENATION

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It has been proposed to prepare oxygen-containing carbon compounds by the addition of carbon oxide and hydrogen to alkene hydrocarbons. By means of a subsequent oxydation such compounds can easily be converted into carboxylic acids. This process is of special importance for the carbon oxide hydrogenation, since in this way valuable fatty acids and their conversion products can be prepared from easily obtainable mixtures of carbon oxide and hydrogen. However, a drawback of this preparation of fatty acids is the fact that these conversion products of the CO/H₂-synthesis usually contain only small quantities of alkenes.

It has been found that by a suitable combination of special synthesis conditions with subsequent cracking and appropriate oxydation very high yields of fatty acids can be obtained, including large quantities of the synthesis material.

In order to carry out this new combined method, the carbon oxide hydrogenation is performed under such conditions that the largest possible quantities of products boiling at temperatures over 200° C. (392° F.) are obtained. For this purpose one works, for example, with concentrated contacts and performs the synthesis at a fairly high pressure applying the circulation method. Considerable quantities of hydrocarbons of a decidedly alkene character and with a high boiling point are then obtained.

The synthesis products prepared in this way are subjected directly, or after a suitable fractionation, to a mild cracking process. It is advisable to perform this cracking at moderate temperatures, e. g. between 400° C. (752° F.) and 550° C. (1022° F.), by adding large quantities of water vapor. Hereby catalysers may or may not be used. The cracking products obtained con-

tain large quantities of alkene hydrocarbons with a boiling point between 180° C. (356° F.) and 300° C. (572° F.).

5 These mixtures of hydrocarbons obtained by cracking are then treated with mixtures of carbon oxide and hydrogen, by using temperatures up to 200° C. (392° F.), high pressures (e. g. 50-150 atm.), and metal catalysers of the 8th group of the periodic system. The alcohols or aldehydes obtained by addition of watergas are oxidised to fatty acids by means of air, oxygen containing gases, or substances giving oil oxygen, by using suitable contacts which may, for instance, consist of the oxides of manganese, cobalt, or the
10 like.

15 With the aid of the combined process in accordance with the invention, up to 50% of the synthesis products obtained by the hydrogenation of carbon oxide can without difficulty be converted into valuable fatty acids. These fatty acids are especially valuable because they have a highly ramified molecule structure. During the oxydation of paraffines, which up to the present has been used for the preparation of synthetic fatty acids, all molecule-ramifications disappear, and almost completely straight-chain products are obtained. On the contrary, by the addition of watergas to alkene hydrocarbons, the present molecule ramifications are completely preserved. Moreover, since the carbon oxide generally enters into the side-chain, further ramifications are obtained. As final product, high-molecular fatty acids are procured, which have a considerably higher solubility, foaming effect and washing capacity than the mainly straight-chain fatty acids at present obtainable by synthesis.

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