XVIII. MANUFACTURE OF CARBOXYLIC ACIDS.

Information on this process was obtained from Dr.Gericke, the plant foreman, with whom the installation was inspected.

The process is based on the following reaction:

$$R\,CH_2\,OH + NaOH \longrightarrow RCOONa + 2H_2$$

It is carried out by vaporising the alcohol and passing the alcohol vapours into a mixture of NaOH and alcohol maintained at 446 - 518°F; the violent mixing obtained in this way is important for successful operation. An excess of 17% NaOH beyond the amount required for complete conversion of the total quantity of alcohol is used in the reaction. The resulting sodium salt of the carboxylic acid is subsequently converted into the free acid. N-butyl, iso-butyl, hexyl and heptyl alcohols have been successfully processed but the C_8-C_{12} alcohols were most frequently used because the resulting acids were utilised in the preparation of the lubricating oil inhibitor "R". Another use of these acids consisted in the preparation of metal salts (Zn, Ca, Mg) to be used as substitute protective coatings. The alcohols were obtained in the course of the isobutyl-alcohol synthesis.

The production of this plant amounted to 60 - 70 tons/month (132,000 - 154,000 lbs/month). Capacity was 150 tons/month.