PATENT SPECIFICATION

698,282

Date of filing Complete Specification: Feb. 20, 1952.

Application Date: March 20, 1951. No. 6638/51.

Complete Specification Published: Oct. 14, 1953.

Index at acceptance:—Class 2(iii), C3a13a3(a1a: b1: c).

COMPLETE SPECIFICATION

Improvements in or relating to the Production of Sodium Methoxide

ERRATUM

SPECIFICATION No. 698,282.

Page 3, line 52, *for* "625,423" *read* "625,453"

THE PATENT OFFICE,
25th November, 1954.

It is known, that when caustic alkalies are dissolved in alcohols, an equilibrium mixture of alcohol, alkali, alkoxide and water is formed according to the equation

$$M.OH + R.OH \Longleftrightarrow R.OM + H_2O$$

where M is an alkali metal and R an alkyl group, and that removal of water from such a system displaces the equilibrium to the right. Azeotropic distillation is frequently used as a method of separating the water in similar complex mixtures, and is indeed employed in the preparation of sodium ethoxide from ethyl alcohol and caustic soda. In the case of sodium methoxide, however, this method cannot be advantageously used, since a solvent which will form the necessary azeotropes is not readily available.

We have now found that water can be satisfactorily eliminated from the equilibrium mixture containing methanol, [illegible] when the reaction goes to completion, since removal of less than this amount will mean that the product contains more free caustic soda. On the other hand, if the reagents used are not absolutely anhydrous, rather more than the theoretical amount of water may be present.

The alcohol-water mixture which is removed may subsequently be fractionated and the recovered dry methanol recirculated to the reaction vessel to help to replace that which has been distilled.

The quantity of water present in the equilibrium mixture is relatively small, and its rate of removal varies according to the initial concentrations of the methanol and caustic soda, and is found to increase as the caustic soda concentration is increased. A high molecular ratio of methanol to caustic soda, although giving a fluid mixture which is easily stirred, thus necessitates the distillation of a large amount of methanol before a suitable product containing only a small proportion