

PATENT SPECIFICATION



Application Date : Aug. 18, 1926. No. 20,381 / 26.

286,010

(Patent of Addition to No. 240,955 : dated July 29, 1924.)

Complete Accepted : Feb. 20, 1928.

1376

* COMPLETE SPECIFICATION.

Improvements in the Manufacture of Organic Compounds.

I, JAMES YATE JOHNSON, a British subject, of 47, Lincoln's Inn Fields, in the County of London, Gentleman, do hereby declare the nature of this invention (which has been communicated to me from abroad by I. G. Farbenindustrie Aktiengesellschaft, of Frankfurt-on-Main, Germany, a corporation organized according to German laws), and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

The present invention is an improvement in or modification of the invention described and claimed in the Specification No. 240,955 according to which specification the synthetic manufacture of methanol, either pure or mixed with other organic compounds containing oxygen, mainly higher alcohols or mixtures of them, by catalytically hydrogenating carbon monoxide at an elevated temperature and pressure is considerably improved by the process being carried out in the absence of iron. By this is meant that the reaction vessel as well as the catalysts should not consist of or contain free metallic iron and that the gases employed for the reaction should be free from volatile compounds of iron.

It has been shewn in the Specification No. 254,819 that organic compounds containing oxygen can be produced by causing carbon monoxide or a gas containing carbon monoxide to act on a vapourised aliphatic alcohol or an ester thereof, or both alcohols and esters, with the aid of a catalyst containing a constituent of a hydrating nature alone or in conjunction with a hydrogenating constituent and/or an alkali or alkaline earth metal compound, at an elevated temperature and under elevated pressure.

My foreign correspondents have now further found that in the process described and claimed in the said Specification No. 254,819 the characteristic feature of the process described and claimed in the aforesaid Specification No. 240,955 is of a very great advantage, since in the process of No. 254,819 there is also a risk of volatile compounds of iron being formed by the interaction of the carbon monoxide with free iron present which would lead to troubles in the course of the reaction. For the same reason nickel and cobalt must be excluded; iron, nickel and cobalt are hereinafter referred to as iron metals. Accordingly, it is necessary according to the present invention that in the process of No. 254,819 the inner parts of the apparatus with which the materials come into contact should be constructed of or coated with metals other than iron metals or alloys containing iron which are stable against the action of carbon monoxide. It is also essential that the catalysts employed in the reaction and also the gases passed through the apparatus should be freed from iron metals and volatile compounds thereof.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that I am aware of Specification No. 247,217 and make no claim to what is described or claimed therein, but what I claim is :—

The improvement in or modification of the invention described and claimed in the Specification No. 240,955 which consists in applying the feature of excluding iron metals and volatile compounds thereof to the production of organic compounds containing oxygen by the interaction of carbon monoxide and a vapourised aliphatic alcohol or an ester thereof, or both alcohols and esters, with the aid of a catalyst containing a constituent of a hydrating nature alone or in conjunction with a hydrogenating constituent and/or an alkali or alkaline earth metal compound, at an elevated temperature and under elevated pressure.

Dated this 18th day of August, 1926.

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Agents.