

I. G. Farbenindustrie A. G.  
Ludwigshafen - July 1, 1941.

PATENT APPLICATION FOR A PROCESS FOR THE MANUFACTURE OF MOTOR FUEL

In order to avoid recycling of large quantities of n-butane with n-butylene in the alkylation, it is advantageous to separate the n-butane prior to alkylation. This can be carried out by treating the mixture with a heavy metal salt solution, for instance, cuprous chloride or silver nitrate. It has been found that the method used up to now for liberating the olefins from the solution by heating or by reduction of pressure can be replaced by passing the isoparaffin used for the alkylation into the silver nitrate solution at ordinary temperature and pressure. In this way splitting of the heavy metal salt-olefin complex present in the solution is obtained to a degree sufficient for technical purposes. This splitting is especially complete if the solution to be treated is passed into a packed tower and treated counter-currently with isoparaffin introduced into the tower in its lower half. The metal salt solution, freed to a large extent from olefins, is recycled.

This process is not limited to the treatment of gases which have been obtained by fractionating the  $C_4$  out from high-pressure hydrogenation products. It can also be used for working up cracking gases which usually contain considerable amounts of olefins, besides n-paraffin and isoparaffin; they can be subjected to the heavy metal salt treatment without prior dehydrogenation steps. The process described has advantages over the operations used up to now insofar that it obviates heating and depressuring of the metal salt solution which has been used previously and which requires additional equipment; the mixture of olefins with isoparaffin can be used directly in the alkylation.

Claims

1. Process for the alkylation of isoparaffin with olefins, especially of isobutane with n-butylene, by using olefins which have been obtained by separating them from a mixture with n-paraffin by means of a heavy metal salt solution. The process is characterized by liberating the olefins from the metal salt solution by passing the isoparaffin to be used in the alkylation into the metal salt solution and using the mixture of olefins and isoparaffins obtained in this way in the alkylation step.