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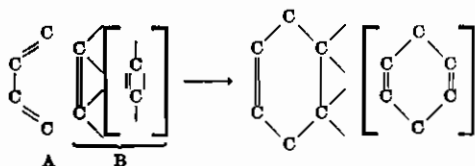
CONDENSATION PRODUCTS

Kurt Alder, Cologne-Deutz, and Hans-Ferdinand
Rickert, Cologne, Rhine, Germany; vested in
the Alien Property Custodian

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The present invention relates to new condensation products and to the process of preparing the same.

The so-called "diene-synthesis" resides in the addition of compounds containing two conjugated C=C double linkages with such compounds containing an ethylene or acetylene group wherein the said unsaturated linkage is likewise conjugated with another double bond. In general, the "diene-synthesis" proceeds in the following manner:



it being to be understood that in the reaction component designated by symbol B the unsaturated linkage is activated by another double bond as stated above. Examples for compounds of type B are 1,3-dienes, α,β -unsaturated aldehydes, ketones, carboxylic acids and carboxylic acid nitriles.

The present invention is based on the observation that the "diene-synthesis" is not restricted to the situations as defined above. We have found that certain unsaturated compounds containing a single C=C double linkage which is not activated by another unsaturated bond, are likewise capable of forming addition products of the character described, if reacted upon with compounds containing two conjugated C=C double linkages. Starting materials of the first type are vinyl esters of organic acids, vinyl halogenides, dihalogen and trihalogen ethylenes. Compounds of the latter type are those commonly employed in the diene-synthesis such as butadiene-1,3, isoprene, 2,3-dimethylbutadiene-1,3, cyclopentadiene, cyclohexadiene and anthracene.

The reaction is performed by simply heating the mixture of the starting materials, preferably in a closed vessel. As a matter of fact care must be taken that the reaction is performed under such conditions as to prevent any substantial polymerization. To this end, polymerization inhibitors such as hydroquinone, pyrogallol and the like may be added to the reaction mixture, particularly in case of working with butadiene-1,3, isoprene and 2,3-dimethylbutadiene. As stated above, the reaction is performed at an elevated temperature, it being impossible to give

definite lower and upper limits, since the optimum reaction conditions depend on the nature of the starting materials and on the tendency of the butadienes and the like to form dimeric products. In general, the dimerization process occurs more slowly than the addition of the 2 reaction components. On the other hand, some of the dimeric products may be split up into the monomeric products at a high temperature, whereas the addition products formed by the interaction of the 2 reaction components are stable at such temperatures. Thus, in case of cyclopentadiene the reaction is preferably performed at 180°C as at this temperature the dimerics are split up so that the addition process is nearly quantitative. Other dienes such as anthracene do not show any tendency to form dimerics at the usual reaction temperature.

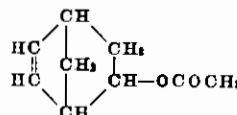
The following examples illustrate the present invention without, however, restricting it thereto, the parts being by weight unless otherwise stated:—

Example 1

100 parts of freshly distilled monomeric cyclopentadiene and 150 parts of vinyl acetate are heated in an autoclave for 14 hours to 180–190°. After distilling off at normal pressure the excess vinyl acetate, the reaction mixture is subjected to distillation in vacuo. At 11 mm pressure the following three fractions are obtained:

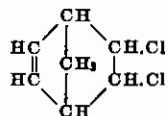
	Parts
I: 73–77°	100
II: 77–140°	10
III: 140–150°	48

Fraction I represents the addition product of the components in the proportion 1:1. It has an intensively ester-like smell and corresponds to the following constitution of a Δ^3 -norbornylene-ol-1-acetate:

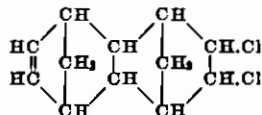


By saponification there is obtained the hitherto unknown alcohol, viz. the Δ^3 -norbornylene-ol-1 of the melting point 108–109°. The hydrotriazole prepared therefrom by the addition of phenylazide has the melting point 147–148°. By hydrogenation of the alcohol in an acetic acid solution with platinum oxide the α -norborneol is obtained which is described in Annalen der Chemie, Vol. 512, 172 (1934). Fraction III rep-

following two addition products of 1 or 2 mol of cyclopentadiene and 1,2-dichloroethylene:



of boiling point 74-76° at 11 mm pressure; the hydrotriazol shows the melting point 148°; and

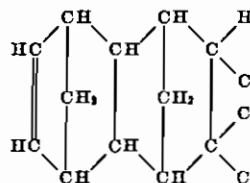


of boiling point 146-148° at 11 mm pressure; the hydrotriazol shows the melting point 210°.

Example 9

When adding trichloro-ethylene to cyclopentadiene while heating the components in an auto-

clave at 175-185° the addition product of 2 mols of the latter and the trichloroethylene of the following constitution is obtained:



This compound represents colorless oil which boils in vacuo at 11 mm pressure at 158-160°. With phenylazide it yields a hydrotriazole of melting point 225-226°.

KURT ALDER.
HANS-FERDINAND RICKERT.