

UNITED STATES PATENT OFFICE.

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PROCESS OF PRODUCING DIVINYL.

1,028,938.

Specification of Letters Patent. Patented June 11, 1912.

No Drawing.

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To all whom it may concern:

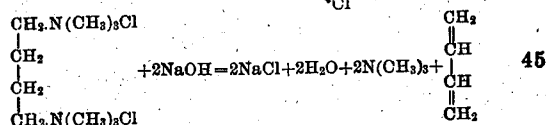
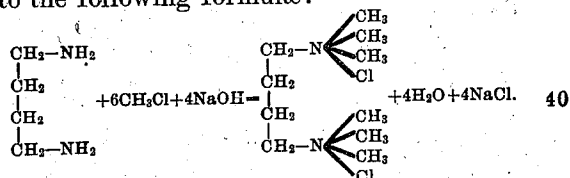
Be it known, that we, FRITZ HOFMANN and CARL COUTELLE, doctors of philosophy, chemists, citizens of the German Empire, residing at Elberfeld, Germany, have invented new and useful Improvements in Processes for Producing Divinyl, of which the following is a specification.

In our application Ser. No. 541761, filed February 3, 1910, we have described our new process of producing divinyl (erythrene) by complete alkylation of tetramethylenediamin and by decomposing the thus obtained quaternary ammonium bases.

The present invention relates to improvements in this process, and more particularly in the step of decomposing the quaternary ammonium bases, and it comprises a process in which such decomposition is effected by means of alkalis, such as caustic soda.

In order to illustrate the new process more fully the following example is given, the parts being by weight:—176 parts of tetramethylenediamin, 1160 parts of a 28 per cent. caustic soda lye and 700 parts of methylchlorid are heated in an autoclave for 6 hours to 70–80°. The mass of the reaction is mixed with 600 parts of a 28 per cent. caustic soda lye and distilled. The distillate is most advantageously collected in a separatory funnel, which removes the aqueous trimethylamin. The gaseous divinyl is washed with diluted sulfuric acid and dried over calcium chlorid.

The process probably proceeds according to the following formulæ:



Instead of CH_3Cl other halogen alkyls may be used, *e. g.*, CH_3I , etc. The process can also be carried out without pressure by slowly introducing, *e. g.*, the ClCH_3 into the mixture while stirring. Instead of NaOH other alkalis, *e. g.*, KOH , $\text{Ba}(\text{OH})_2$, $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, etc., can be used.

We claim:—

The process of producing divinyl which consists in completely alkylating tetramethylenediamin, converting the thus obtained product into the corresponding quaternary ammonium base and finally decomposing this ammonium base by means of alkali, substantially as described.

In testimony whereof we have hereto set our hands in the presence of two subscribing witnesses.

FRITZ HOFMANN. [L. S.]
CARL COUTELLE. [L. S.]

Witnesses:

CHAS. J. WRIGHT,
ALBERT F. NUFER.