

*Citation:*

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**Chemistry.** — "*On Polymers of Methylchavicol*". (Preliminary communication). By Prof. P. VAN ROMBURGH and J. M. VAN DER ZANDEN.

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Some years ago one of us (v. R.) communicated that through heating of methylchavicol some products of polymerisation were obtained, viz. one that melts at 98°, and one that melts at 166°, while moreover still a very slight quantity of a compound melting above 200° could be separated. Elementary analyses and determinations of the molecular weight of the two first-mentioned products made it probable that these are dimers of methylchavicol.

The compound melting at 98° gave a dibromide melting at 87° with bromine.

Since then a greater quantity of these polymers has been prepared, so that a more extensive investigation was possible, some results of which will now briefly be communicated by us here.

In the first place it has been tried to augment the not very large yield of polymers. On change of the duration of the heating and of the temperature it appeared that a slight improvement of the yield can only be obtained by prolonging the former.

Besides the crystalline compounds a viscous syrup, which still contains large quantities of it, is formed. Now we tried to separate part of it by distillation in vacuo (15 m.m.), and we actually succeeded in getting a fairly large yield of crystals from the fraction 283°—313°. When the residue in the flask is heated to a higher temperature (to 350°), a reaction evidently sets in, at least the distillate becomes thinly liquid and the liquid that was distilled over goes over at ordinary pressure between 150° and 350°.

By continued fractionated distillation a product boiling between 175° and 178° was obtained, whose smell resembles that of the methylether of paracresol boiling at 175°.5. Oxidation of the compound formed with the mixture according to KILIANI yields an acid, which after recrystallisation melts between 178° and 181° and does not give lowering of the melting point when mixed with anisic acid.

If the substance is treated with conc. nitric acid (Sp. gr. 1.5), light yellow crystals are formed melting at 122°, which do not

exhibit lowering of the melting point when mixed with the dinitro compound obtained through the same treatment from p. cresyl methyl-ether. The liquid obtained is therefore undoubtedly p. cresyl methyl-ether. How this substance is formed, has not been explained as yet.

The polymer melting at  $166^{\circ}$ , dissolved in chloroform, gives with bromine a bromide, crystallising out from petroleum ether in fine needles, melting at  $139^{\circ}$  while assuming a black colour. About the experiments which have been made to determine the structure of the polymers, we may communicate what follows.

The product melting at  $98^{\circ}$  was oxidised with a solution of potassium permanganate in acetone. At this oxidation there is formed besides anisic acid, an acid which on recrystallisation separates from toluol into hard massive crystals. Melting point  $113^{\circ}$ . A micro-elementary analysis gave C 69.42 and 69.34 %. H 8.06 and 7.68%. These results point to a substance of the composition  $C_{12}H_{16}O_3$  (Theory C 69.22 %, H 7.74 %).

We found 207 for the molecular weight, by titration, assuming the acid to be monobasic. Calculated for  $C_{12}H_{16}O_3$  : 208.

Continued oxidation, now with the mixture according to KILIANI, caused a new acid melting at  $138^{\circ}$  to be formed from this acid melting at  $113^{\circ}$ . We are still occupied with this research.

Oxidation of the product melting at  $166^{\circ}$  yielded only anisic acid.

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