

A similar calculation using the data in Table I yields 30.32, which is in closer agreement with the calculated value.

CONTRIBUTION FROM THE
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COMMUNICATIONS TO THE EDITOR

THE 4-*n*-ALKYL-GUAIACOLS

Sir:

In a recent paper by Coulthard, Marshall and Pyman [*J. Chem. Soc.*, 280 (1931)] on the variation of phenol coefficients, a number of *n*-alkyl guaiacols were prepared and studied. In view of the fact that the latter compounds were under investigation in the authors' laboratory at a much earlier date [Master of Science Thesis submitted by Norine Hower Howells at the Oklahoma A. and M. College, 1929] and since the methods of synthesis were somewhat different, it appears worth while to report briefly the results of this earlier work.

The 4-*n*-alkyl guaiacols were prepared here by the reduction of the corresponding acyl guaiacols, which were obtained after the method of Howells, Little and Andersen [THIS JOURNAL, 52, 4077 (1930)] by the oxidation of the carbinols resulting through the reaction of the benzoate of vanillin with *n*-alkylmagnesium halides. Unlike the work of Coulthard, Marshall and Pyman, the readily formed solid benzoate ester and diphenyl urethan were selected as derivatives for characterizing the new phenols.

The 4-*n*-pentyl guaiacol (b. p. 156–158° at 20 mm.) which resulted in good yields when 4-*n*-valeryl guaiacol was reduced by the Clemmensen method, was found also to have the maximum phenol coefficient for the series, comparable to the findings of the above authors.

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NORINE HOWER HOWELLS
HENRY P. HOWELLS

INTERMEDIATE PRODUCTS IN THE THERMAL DECOMPOSITION OF AMMONIA

Sir:

An attempt has been made to identify the molecule NH as an intermediate product in the thermal decomposition of ammonia, through a study of the absorption spectrum of the decomposing gas. The emission band at $\lambda\lambda$ 3360–70, long known from photographs of the ammonia-oxygen

⁵ This note is taken from a portion of a thesis submitted by Charles M. Blair in partial fulfilment of the requirements for the degree of Master of Arts.