

aldehyde with one of oxanthrone (the tautomeric form of anthrahydroquinone).

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Note on the Interaction of Tertiary Butyl Chloride and Naphthalene.—Wegscheider¹ had studied the reaction between isobutyl chloride and naphthalene in the presence of anhydrous aluminum chloride and had obtained isobutylnaphthalene boiling at 280°. The so-called isobutylnaphthalene was probably α -tertiary butylnaphthalene, b. p. 278–287°, which was later prepared from α -naphthylmagnesium bromide and *tert.*-butyl bromide by Späth.²

Besides the liquid butylnaphthalene, Wegscheider had also obtained a small amount of two solid substances, one crystallizing in fine, white needles of m. p. 80° and the other forming white leaflets or prisms of m. p. 146–147°. Wegscheider thought that probably the lower-melting compound was α,β -dinaphthyl and the substance of m. p. 146–147° was α,α -dinaphthyl (m. p. 154°), being somewhat impure and therefore of depressed melting point.

The writer tried to prepare *tert.*-butylnaphthalene from one mole of *tert.*-butyl chloride and one mole of naphthalene using a small amount (about 1% of the combined weight) of aluminum chloride as catalyst and finally heating the mixture just above its melting point until no hydrogen chloride came off. A liquid mono-*tert.*-butylnaphthalene of b. p. 280° never was formed; on distilling the reaction product, about half a mole of naphthalene was recovered and a fraction boiling over 300° was obtained. On changing the proportions of the starting materials to two moles of *tert.*-butyl chloride and one mole of naphthalene, practically all of the naphthalene was converted into two isomeric di-*tert.*-butylnaphthalenes which could be separated by fractional crystallization from methanol or ethanol. The one as the main product is quite soluble in these alcohols and forms fine, white needles of a salol-like odor. The substance melts at 82–83° and boils at 319°.

Anal. Subs., 0.1200, 0.1285; CO₂, 0.3960, 0.4230; H₂O, 0.1075, 0.1139. Calcd. for C₁₈H₂₄: C, 89.93; H, 10.07. Found: C, 90.03, 89.91; H, 10.03, 9.92.

The other di-*tert.*-butylnaphthalene, melting at 145–146° and boiling at 320°, crystallizes in white prisms and is not easily soluble in alcohol.

Anal. Subs., 0.1271, 0.1205; CO₂, 0.4185, 0.3963; H₂O, 0.1147, 0.1086. Calcd. for C₁₈H₂₄: C, 89.93; H, 10.07. Found: C, 89.93, 89.72; H, 10.10, 10.09.

¹ Wegscheider, *Monatsh.*, **5**, 238 (1884).

² Späth, *ibid.*, **34**, 2013 (1913).

An attempt was made to establish the position of the *tert.*-butyl groups in the naphthalene ring by means of boiling the di-*tert.*-butylnaphthalenes with dilute nitric acid, but no oxidation to the naphthalene-dicarboxylic acids took place.

Very probably Wegscheider had already obtained these two isomeric di-*tert.*-butylnaphthalenes but his belief that his compounds of m. p. 80° and 146–147° were α,β -dinaphthyl and α,α -dinaphthyl was erroneous.

CONTRIBUTION FROM THE
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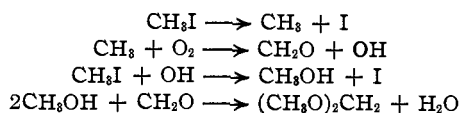
COMMUNICATIONS TO THE EDITOR

PHOTOCHEMICAL REACTIONS OF GASEOUS METHYL IODIDE

Sir:

In a recent communication to *Nature*, Iredale¹ has discussed the action of light upon gaseous methyl iodide. From a study of the short wave limit of the absorption spectrum, he calculates the energy of the C–H bond to be 65 Cal. and suggests, with Herzberg and Scheibe,² that the initial process is the dissociation of methyl iodide into CH₃ and I, since the absorption is continuous. Studies of the photochemical decomposition and oxidation of gaseous methyl iodide in progress in this Laboratory for some time past lend additional support to the idea that CH₃ and I are the initial products. The reaction behaves as though the process were actually that of the oxidation of free methyl groups. Formaldehyde, paraformaldehyde and methylal seem to be the products, while the iodine originally present in the methyl iodide can in all cases be recovered as free iodine.

A possible mechanism for the process is



Kinetic measurements are being made to determine the actual mechanism.

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¹ Iredale, *Nature*, 604, Oct. (1930).

² Herzberg and Scheibe, *Trans. Faraday Soc.*, 25, 716 (1929).