cellent paper on cocarboxylase has appeared. In that paper it was suggested that the use of silver might be avoided.

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Summary

An improved process for the synthesis of cocarboxylase chloride has been presented as well as evidence indicating that cocarboxylase is stable under normal conditions except slight loss of water of crystallization.

RAHWAY, N. J. RECEIVED JANUARY 28, 1941

NOTES

Polymorphic Forms of Substituted Phenols

BY RICHARD T. ARNOLD, HAROLD KLUG, JOSEPH SPRUNG AND HAROLD ZAUGG

In connection with the research on another problem, we prepared 6-hydroxytetralin (β-tetralol) by fusion of the sodium sulfonate with alkali according to Schroeter.[1] This sample of tetralol melted at 53–54° in contrast to the reported value of 62°. It formed transparent, huskily built crystals when precipitated from low-boiling ligroin.

Another sample of β-tetralol from the decomposition of 6-tetralin diazonium chloride melted at 62° and formed opaque needles from low-boiling ligroin.

If a large crystal of the form melting at 54° was brought into contact with one fine needle of the 62° modification, it turned opaque at the point of contact and this opaque boundary passed across the crystal so that in about five minutes the transformation was complete. The resulting melting point of the big crystal was then 62°.

Using a Buerger[2] precision powder camera of 57.3 mm. radius, powder photographs were taken at room temperature using Fe K_α radiation. The powder samples were extruded rods of powder crystals prepared in the device described by Lukesh[3] using LePage's glue as a binder. The following photographs were taken: (a) 54° form, (b) 62°—from 54° by contact with 62° form, (c) 62° form. Both (b) and (c) were identical and different from (a).

In a similar manner 4-hydroxyhydrindene has been obtained in two crystalline forms. The first, m. p. 39.5–40°, was produced by alkali fusion of the sodium sulfonate and precipitated from ligroin in needles.

From the 4-hydrindenediazonium chloride we obtained 4-hydrindenol melting at 49–50° as described by Linder.[4]

Powder photographs of these two forms showed them to be entirely different. The melting point of the low-melting form (39.5–40°) was raised to 49–50° by contact with the 49–50° modification.

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[1] Schroeter, *Ann.*, **426**, 120 (1922).

[2] Buerger, *Am. Mineral.*, **21**, 11–17 (1936).

[3] Lukesh, *Rev. Sci. Instruments*, **11**, 200 (1940).

[4] Linder, *Monatsh.*, **72**, 219 (1939).

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p-(*p*-Aminophenyl)-benzenesulfonamide

BY CONARD K. DONNELL, JAMES H. DIETZ AND WILLIAM T. CALDWELL

Recently Van Meter, Bianculli and Lowy[1] reported the preparation of *p*-(*p*-aminophenyl)-benzenesulfonamide from *p*-aminobiphenyl. We, too, had prepared this compound in the same way with results essentially like theirs; however, we determined the orientation of the sulfonamide group differently by means of an independent synthesis from *p*-nitrobiphenyl, a synthesis which is, of course, equally applicable to the preparation of other N′-substituted sulfanilamides. The structure of the requisite intermediate *p*-(*p*-nitrophenyl)-benzenesulfonic acid was proved by Gabriel and Dambergis,[2] by showing that the same product is obtained upon sulfonation of *p*-nitrobiphenyl as upon nitration of *p*-phenyl-

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[1] Van Meter, Bianculli and Lowy, THIS JOURNAL, **62**, 3146 (1940).

[2] Gabriel and Dambergis, *Ber.*, **13**, 1410 (1880).