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## Pyrolidines from Primary Amines

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As an example, *n*-octadecyl amine and acetic acid gives a 24 per cent yield of salt melting at 84.5-85°. Upon heating this salt at 225° for fifteen minutes there is a quantitative conversion to *n*-octadecylacetamide (m.p., 78-78.5°).

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## PYRROLIDINES FROM PRIMARY AMINES

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Pyrrolidine has been prepared from *n*-butylamine by heating *N*-chloro-*N*-acyl derivatives of the amine with concentrated sulfuric acid.

*N*-chloro-*N*-butylacetamide underwent ring closure with the formation of pyrrolidine in 50 per cent yields when heated with 95 per cent sulfuric acid for one hour at 130-140°. With 99.5 per cent acid the percentage yield was much lower.

*N*-chloro-*N*-*n*-butyl-*p*-toluenesulfonamide when heated with 95 per cent sulfuric acid for thirty minutes at 140° formed pyrrolidine in 50 per cent yields.

In both cases considerable amounts of *n*-butylamine were also formed.

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## BEHAVIOR OF SOME *p*-HYDROXYBENZALDEHYDE DERIVATIVES TOWARD OXIDIZING AGENTS

R. P. PERRY AND L. CHARLES RAIFORD

Benzaldehyde<sup>1</sup> and its alkyl, alkoxy and halogen substitution products are readily oxidized to the corresponding acids. Contact with air often brings about the change.<sup>2</sup> Bücking,<sup>3</sup> and Fittig and

<sup>1</sup> Wöhler and Liebig, *Ann.*, 3,250 (1832).

<sup>2</sup> Bornemann, *Ber.*, 17, 1466 (1884).

<sup>3</sup> Bücking, *Ber.*, 9,529 (1876).