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The reaction of 2-chloroethylformamide (**1a**) with sodium hydride, in *N*-methyl-2-pyrrolidone, at reduced pressure, gave anhydrous 2-oxazoline (**2a**) in good yield.

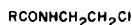
J. Heterocyclic Chem., **17**, 1613 (1980).

In connection with another project, it became necessary to synthesize substantial amounts of anhydrous 2-oxazoline (**2a**). This substance is usually prepared (**2**) by the addition of 2-chloroethylformamide (**1a**) to 50% aqueous potassium hydroxide, followed by distillation, *in vacuo*, of the oxazoline thus formed from the reaction mixture. Water co-distills with the product and is said to be removable by the cautious addition of solid potassium hydroxide at low temperature. Distillation of this mixture and subsequent redistillation of the distillate from potassium hydroxide is reported to give pure anhydrous 2-oxazoline in about 40% yield. It has been our experience, however, that it is exceedingly difficult to effect the drying process without the occurrence, at some stage thereof, of a decomposition reaction sufficiently vigorous to expell the 2-oxazoline from the vessel in which it is contained. We have found that this problem is obviated by cyclization of 2-chloroethylformamide with sodium hydride in anhydrous 1-methyl-2-pyrrolidone. Distillation of the product from the solution is effected under high vacuum at room temperature, the product being collected in a trap cooled to -70° . Anhydrous **2a** was thus obtained reproducibly in approximately 70% yield. The same process could be utilized to prepare 2-methyl-2-oxazoline (**2b**) from 2-chloroethylacetamide (**1b**).

ed, in a dropwise manner, to a stirred suspension of sodium hydride (17.8 g., 0.74 mole) in dry 1-methyl-2-pyrrolidone (170 ml., nitrogen atmosphere). The reaction temperature was not allowed to exceed 35° . When the addition was completed, the reaction vessel was evacuated to 0.14 mm and the product (38 g., 74%) was collected in a trap cooled to -70° in a dry-ice-acetone bath. The 2-oxazoline thus obtained contained 1-methyl-2-pyrrolidone (5-10%) as the only contaminant; spectra: ir: 1674 cm^{-1} ; nmr: 6.77 (s, 1H, $W_H = 3\text{ Hz}$), 3.58-4.42 (m, 4H). The nmr spectrum is in accord with that previously reported (**4**) for this compound.

2-Methyl-2-oxazoline (**2b**).

The synthesis of this substance from 2-chloroethylacetamide (15 g., 0.12 mole) and sodium hydride (3.3 g., 0.14 mole) in 1-methyl-2-pyrrolidone (30 ml.) was effected in the manner described above, except that the reaction temperature was not allowed to exceed 50° and the product (7.9 g., 75%) was distilled at a pressure of 1 mm; spectra: ir: 1678 cm^{-1} ; nmr: 1.97 (s, 3H), 3.53-4.47 (m, 4H). Bassiri (**5**) has described a similar synthesis of this compound using sodium carbonate as the base. The product thus obtained contained ca. 10% water which was then removed azeotropically.



EXPERIMENTAL (3)

2-Oxazoline (**2a**).

2-Chloroethylformamide (78 g., 0.73 mole; prepared by the method of Wenker (**2**) except that the fraction b.p. $70-95^{\circ}/2\text{ mm}$ was used) was added,

REFERENCES AND NOTES

- (1) Contribution No. 554 from the Syntex Institute of Organic Chemistry.
- (2) H. Wenker, *J. Am. Chem. Soc.*, **60**, 2152 (1938).
- (3) The infrared spectra were recorded with a Perkin-Elmer model 237 grating infrared spectrometer in chloroform solution. The nmr spectra were measured with a Varian T-60 spectrometer in deuteriochloroform solution containing tetramethylsilane as an internal standard.
- (4) R. J. Abraham, K. Parry, and W. A. Thomas, *J. Chem. Soc. (B)*, 446 (1971).
- (5) T. G. Bassiri, French Patent 1,477,049 (1967); *Chem. Abstr.*, **68**, 21924y (1968).