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**Carboxylation of Nitromethane by Carbon Dioxide and
Potassium Phenoxide Derivatives. Substituent
Effect upon the Yield of Carboxylate***

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The carboxylation of nitromethane with carbon dioxide proceeded in the presence of potassium phenoxides in DMF, yielding dipotassium nitroacetate as a precipitate. This reaction proceeded well at 0°C. The substituent effect upon the carboxylation was investigated by using potassium phenoxides with various substituents (*p*-OCH₃, *p*-CH₃, H, *p*-Cl, *m*-Cl, *p*-COCH₃, and *p*-NO₂). The reaction was completed in 5 min at 0°C. The maximum yield of carboxylate was obtained when unsubstituted phenoxide was used; the yield of carboxylate was low when potassium phenoxide with a substituent having a highly negative or highly positive σ value was used.

The mechanism of the carboxylation is discussed. The formation of the carboxylate as a precipitate is considered to be an important factor. Methods for the effective transformation of dipotassium nitroacetate to methyl nitroacetate are briefly surveyed.

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