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A Facile Synthesis for the Preparation of Alkylamidothiophosphate - Potassium

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A Facile Synthesis for the Preparation of Alkylamidothiophosphate - Potassium

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The reaction of 0.0-dialkyl-alkylamido-thiophosphates with potassium hydroxide without a solvent is strong exotherm. The products formed with nearly quantitative yield are the corresponding alkylamidothiophosphate-potassium (1):

$$\begin{bmatrix} R_1 & S_1 & S_2 & S_3 \\ N-P-(OR_3)_2 + KOH & \longrightarrow & \begin{bmatrix} R_1 & S_1 & S_2 \\ R_2 & OR_3 \end{bmatrix} \odot K^{\oplus} + R_3OH$$

In contrast the same reaction with sodium hydroxide instead of potassium hydroxide is not exotherm. Based on these results a new method was developed for the preparation of the compounds (1). As opposed to hitherto known methods for the preparation of the potassium salts (1) there are no problems concerning waste water or air pollution.

Compounds (1) are flotation agents and intermediates for plant protection.