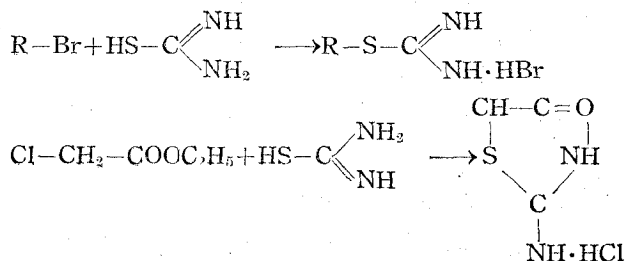


22. Studies on Thiourea Derivatives of Fatty Acids

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It is already known, that alkylthiuronium salt is produced when alkylhalide is condensed with thiourea in alcohol (Org. Synth. collected Vol. II, 1045) and also that pseudothiohydantoin is obtained from monochloroacetic acid and thiourea (Org. Synth. 27, 71).



We cannot, however, find any publication in which the above mentioned reactions were performed with halogenated oleic acid ester (9,10-dibromostearic acid ester) and α -bromostearic acid. Therefore the authors intended to investigate this problem and obtained the following results:

- (1) The reaction product from methyl 9,10-dibromostearate and thiourea.

Yield	saponification value	N-content
15g from 20g 9,10-dibromostearate Calculated as $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}_3$	298.5	9.89%
$ \begin{array}{c} \text{S} \quad \text{S} \\ \quad \\ \text{C} \quad \text{C} \\ \diagup \quad \diagdown \quad \diagdown \quad \diagup \\ \text{HBr} \cdot \text{NH}_2 \quad \text{NHNHNH}_2 \quad \text{HBr} \end{array} $	299.8	9.97%

- (2) The reaction product from α -bromostearic acid and thiourea.

Yield	S-content	N-content
17g from 20g α -bromostearic acid Calculate as $\text{C}_{16}\text{H}_{33}\text{-CH-C=O}$	10.25%	8.07%
$ \begin{array}{c} \text{S} \quad \text{NH} \\ \quad \\ \text{C} \\ \\ \text{NH} \end{array} $	9.55%	8.18%

In both cases, 20g of the starting material was dissolved in 60g butanol and was stirred with 7g thiourea in a 500cc round bottom flask for 10 hours after cooling the reaction products were separated and purified.