SYNTHESIS OF CARBAMATES BY CARBONYLATION OF NITRO COMPOUNDS IN THE PRESENCE OF THIOUREA

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Carbamates are obtained by the carbonylation of nitro compounds in an alcoholic medium in the presence of catalysts based on Pd, Rh, and Se [1].

We found that thiourea $(NH_2)_2CS$ catalyzes this reaction. Various organic bases act as promotors: triethylamine, pyridine, imidazole, α-aminopyridine, and tris(methoxy)aminomethane.

The synthesis of phenyl carbamate was carried out at 160-200°C, a carbon monoxide pressure equal to 50-70 atom, and a nitro compound:promotor:catalyst ratio equal to 10:0.5:1. The extent of conversion of the original nitrobenzene was 50-68%, and the selectivity of the formation of phenyl carbamate was 60-70%.

When α-aminopyridine serves as the promotor, an increase in the temperature from 160 to 200°C results in an increase in the extent of conversion of nitrobenzene from 20 to 67%. The yield of phenyl carbamate at 200°C was 55%.

LITERATURE CITED

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