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We have found that benzaldehyde (BA) undergoes 72-97% conversion on a reduced fused iron catalyst promoted by V_2O_5 at 220-250°C. The partial pressure of H_2 and BA were 960-990 and 10-40 GPa, respectively, and the specific BA inlet rate was 200-240 g/h·liter cat. Unexpectedly, the reaction products were found to contain trans-stilbene and dibenzyl (15-30% total), benzyl alcohol, dibenzyl ether, and 1,2,3-triphenylpropane (0.3-1.5% total). The remainder was toluene.

Two pathways may be proposed for the formation of dibenzyl (I) on the iron catalyst: 1) benzoin condensation of BA and subsequent hydrodesoxygenation of benzoin to give (I) and 2) metathesis of BA at the carbonyl group to give stilbene (II) through a benzyldiene intermediate and the subsequent hydrogenation of (II) to give (I). We note that the latter variant for the mechanism of the formation of (II) has been proposed to explain the reaction of BA with WCl_6 -BuLi [1] or WCl_6 -LiAlH₄ [2], which are typical homogeneous catalytic systems for olefin metathesis.

LITERATURE CITED

1. K. B. Sharpless, M. A. Umbreit, M. T. Nieh, and T. C. Flood, *J. Am. Chem. Soc.*, **94**, 6538 (1972).
2. Y. Fujiwara, R. Ishikawa, F. Akiyama, and S. Teranishi, *J. Org. Chem.*, **43**, 2477 (1978).

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