Correspondence

Exchange of Carbonyl Groups in Pentacarbonyliron

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Sir:

In their letter entitled "Carbon-13 Isotopic Exchange in Pentacarbonyliron"[1] Mahnke and Sheline (M–S) stated that in order to answer the question as to whether the scrambling of the CO groups in $Fe(CO)_5$ follows an intra- or an intermolecular path: "the exchange rate should be studied between equally activated carbon monoxide molecules in $Fe(CO)_5$ rather than between activated and unactivated CO groups as in ref 6". M–S's ref 6 is our paper on the CO exchange in $Fe(CO)_5$ and $Fe(CO)_4PPh_3$.[2] I wish to point out that we have done just that experiment M–S have called for and published in their letter. On p 315 we wrote in 1969:[2] "We observed that a heptane solution of a 1:1 mixture of natural $Fe(CO)_5$ and $Fe(C^{18}O)_5$ in the absence of a catalyst did not show any scrambling of the $C^{16}O$ and $C^{18}O$ between the $Fe(CO)_5$ molecules." Furthermore, the essence of Figure 2 (p 316) is identical with M–S's Figures 1 and 2, the only difference being that M–S used ^{13}CO instead of $C^{18}O$. We have also reached virtually the same conclusions as M–S, as is clear from the last sentence in our discussion: "Certainly there is no intermolecular exchange under uncatalyzed condition."

Registry No. $Fe(CO)_5$, 13463-40-6.

References and Notes

(1) H. Mahnke and R. K. Sheline, *Inorg. Chem.*, **15**, 1245 (1976).
(2) K. Noack and M. Ruch, *J. Organomet. Chem.*, **17**, 309 (1969).

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