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*J. Organometal. Chem.*, 6 (1966) 412-420

## SHORT COMMUNICATIONS

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### A revised structure for the butatriene iron carbonyl complexes

We have reported the formation of butatriene di-iron pentacarbonyl,  $C_4H_4Fe_2(CO)_5$  (I), and related complexes<sup>1</sup>. The mass spectrum of I now showed the correct composition of I to be  $C_4H_4Fe_2(CO)_6^*$ . The parent peak ( $M^+$ ) appeared at  $m/e$  332 (calcd. for  $C_4H_4Fe_2(CO)_6$ , 332). The presence of six CO groups was indicated by the appearance of six similarly-shaped groups of peaks at the interval of  $m/e$  28, i.e. at  $M^+ - 28 \cdot n$  ( $n = 1, 2, \dots, 6$ ). The previous elemental analysis<sup>1</sup> also conformed to the hexacarbonyl structure. (Found: C, 35.85; H, 1.27.  $C_{10}H_4Fe_2O_6$  calcd.: C, 36.19; H, 1.21 %.) The infrared pattern of the metal carbonyl stretching region is similar to that of the other di-iron hexacarbonyl compounds, e.g.  $(RC \equiv CR)_2Fe_2(CO)_6^2$ , in which the disposition of  $Fe_2(CO)_6$  moiety will presumably be similar to I. Therefore, the composition of the substituted butatriene iron carbonyl complexes<sup>3</sup> previously reported probably have the similar di-iron hexacarbonyl structure.

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Received June 10th, 1966

\* The same mass spectral result was also reported by R. B. KING, *J. Am. Chem. Soc.*, 88 (1966) 2075.