Erratum

IR spectroscopic study on surface-mediated reductive carbonylation of hydrated SiO_2-supported $Ru(NO_3)_3$, L. Huang and Y. Xu, Catal. Lett. 71 (2001) 27.

$Ru(NO_3)_3$ should be replaced by $Ru(NO)(NO_3)_3$ throughout the paper. The figures 1–3 in the paper should be substituted by the following figures 1–3.

The equations in the paper should be replaced by the following ones:

$$2Ru(NO)(NO_3)_3 + 19CO + 4HOSi \xrightarrow[\text{or } 100\,^\circ\text{C, } 100 \text{ Torr CO}]{25\,^\circ\text{C, } 100-700 \text{ Torr CO}} Ru(CO)_2(OSi)_2 + Ru(CO)_3(OSi)_2 + 4N_2O + 14CO_2 + 2H_2O \quad (1)$$

$$4Ru(NO)(NO_3)_3 + 46CO + 2HOSi \xrightarrow[700 \text{ Torr CO}]{100-150\,^\circ\text{C}} Ru_3(CO)_{12} + Ru(CO)_3(OSi)_2 + 31CO_2 + 8N_2O + H_2O \quad (2)$$

In the Results and discussion section, the first two paragraphs should be written as follows:

Figures 1 and 2 show the surface IR spectra taken during the carbonylation of hydrated $Ru(NO)(NO_3)_3/SiO_2$ under 100 Torr of CO. Figure 1(a) represents N–O stretching vibrational bands of $Ru(NO)(NO_3)_3/SiO_2$. The bands at 1888 and 1512 cm^{-1} are attributed to the terminal NO and NO_3^-, respectively. The following spectra of carbonylated samples are represented by subtracting that of the starting $Ru(NO)(NO_3)_3/SiO_2$.

As soon as a light brown wafer of hydrated $Ru(NO)(NO_3)_3/SiO_2$ which had been outgassed under vacuum (10^{-2} Torr) at 25 °C for 1 h, was exposed to 100 Torr of CO at 25 °C, a band at 2159 cm^{-1} appeared together with an inverse band at 1886 cm^{-1}. About 2.5 h later, two other bands at 2085 and 2028 cm^{-1} were discerned, with the concomitant appearance of the water band at 1629 cm^{-1} and another inverse band at 1533 cm^{-1}. As seen in figure 1, the bands at 2150, 2085 and 2028 cm^{-1} developed slowly as the carbonylation proceeded at 25 °C. This set of bands closely resemble those superim-

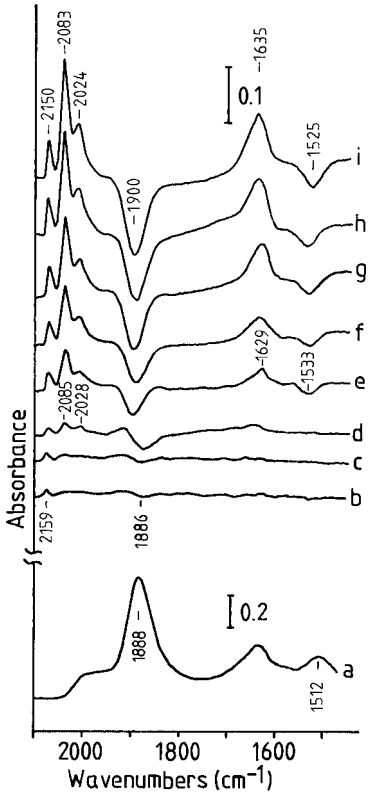

Figure 1.

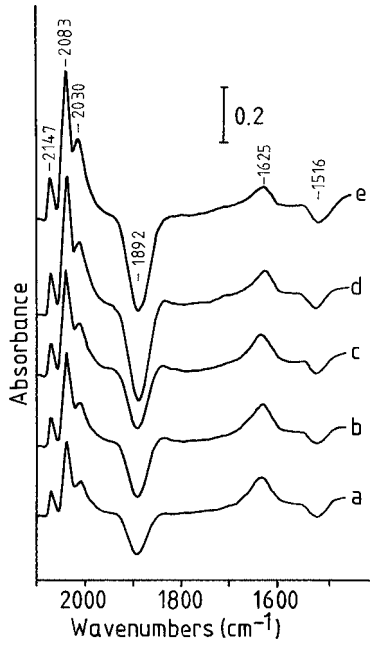

Figure 2.

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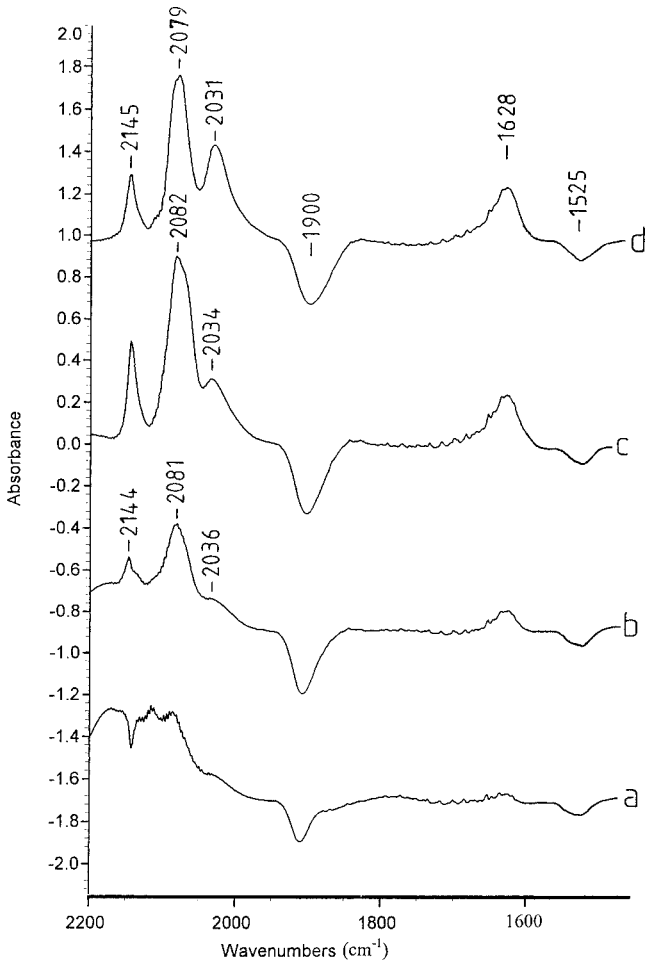

Figure 3.

posed of the carbonyl bands for $Ru(CO)_2Cl_2(HOSi)_2$ [8] and $Ru(CO)_3Cl_2(HOSi)$ [8,13] and thus are assignable to a surface mixture of ruthenium(II) dicarbonyl and tricarbonyl species on SiO_2. At the same time, the water band at 1629 cm^{-1} increased in intensity with time while the 1900 and 1525 cm^{-1} bands grew inversely with time, indicative of loss of NO and NO_3^- groups from the surface and concurrent increase of water amount on the surface during carbonylation. Increasing the temperature markedly enhanced the rates of carbonylation and conversion of NO and NO_3^- on SiO_2, as seen in figure 2. After 28 h of treatment under 100 Torr of CO at 100 °C, the wafer had no apparent color change. But the carbonylation equilibrium of $Ru(NO)(NO_3)_3$ was reached because the carbonyl band intensities increased no more. It can be roughly estimated from the inverse NO band intensity at 1892 cm^{-1} (figure 2(d)) that 57% of $Ru(NO)(NO_3)_3$ is consumed. Furthermore, no other N–O stretching vibrational bands were present in the surface spectra.