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Solvent-free mechanochemical synthesis of two Pt complexes: *cis*-$(Ph_3P)_2PtCl_2$ and *cis*-$(Ph_3P)_2PtCO_3$

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Supplementary information

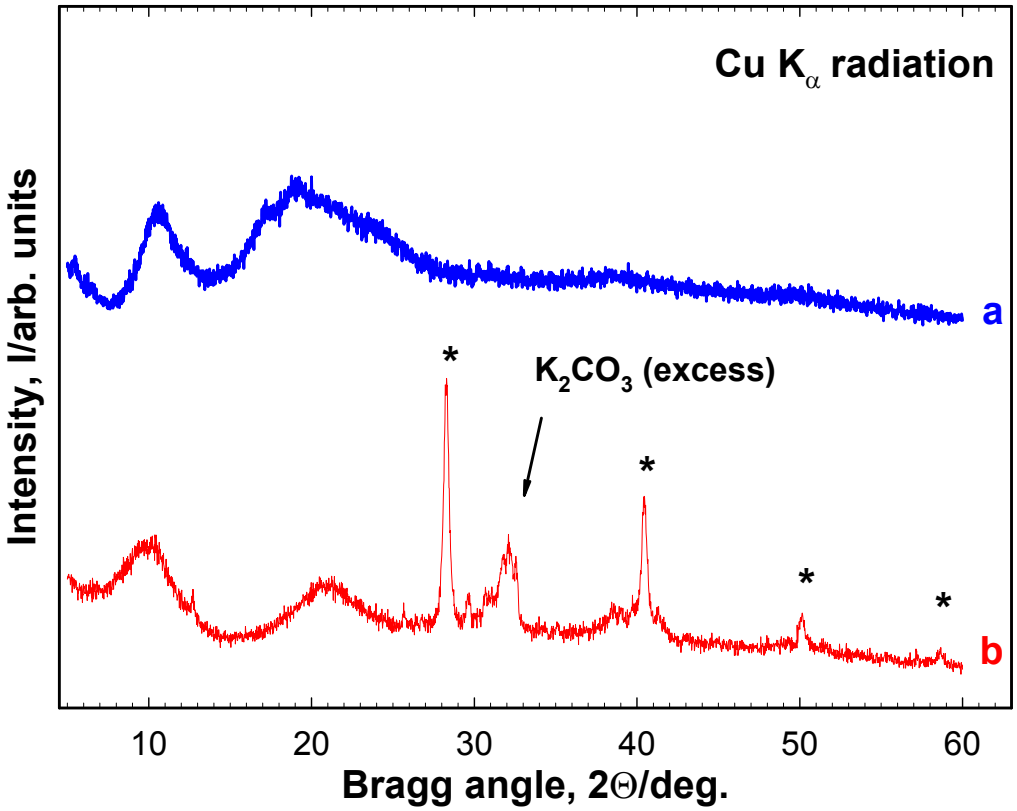

Fig. 2. The x-ray powder diffraction pattern of powders obtained during ball-milling of $PtCl_2$ with two equivalents of Ph_3P for one hour **(a)**, and *cis*-$(Ph_3P)_2PtCl_2$ **1** with 2.5 equivalents of anhydrous K_2CO_3 for 6.5 hours **(b)**. The asterisks in (**b**) indicate Bragg peaks of one of the reaction products - KCl. The excess of K_2CO_3 is detected in the x-ray diffraction pattern as a group of Bragg peaks between ~30 and 33° 2θ as indicated by the arrow.

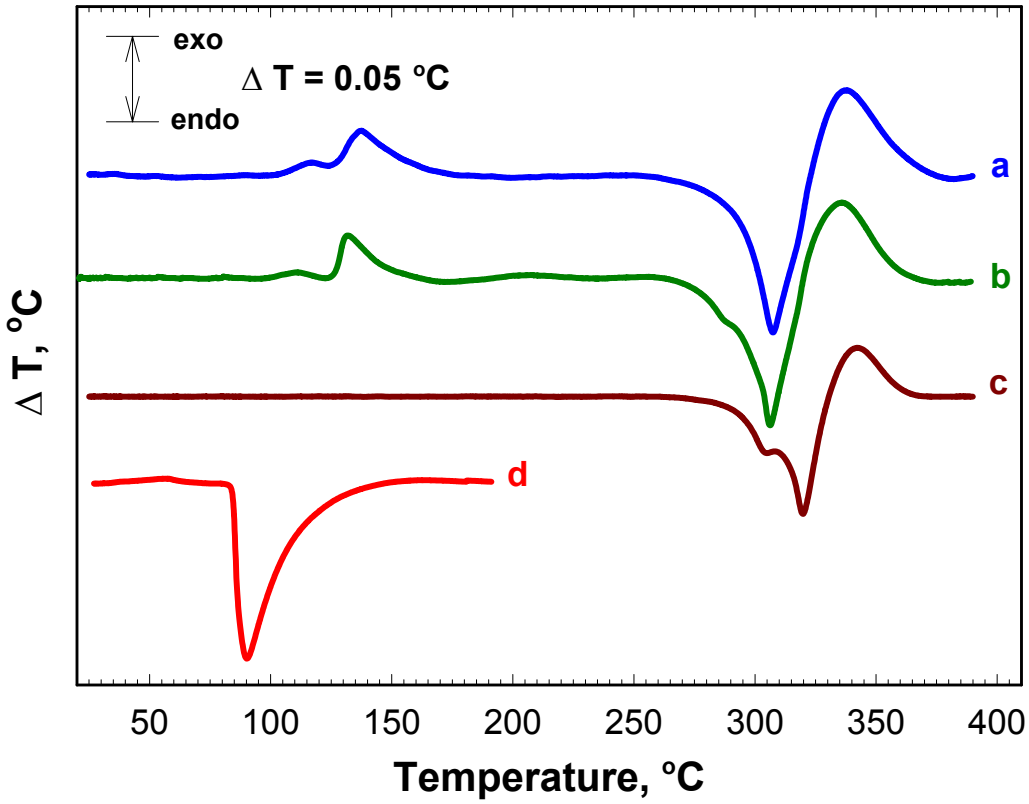

Fig. 3. The DTA traces of powders obtained during ball-milling of $PtCl_2$ with two equivalents of Ph_3P for one hour **(a)**; *cis*-$(Ph_3P)_2PtCl_2$ **1** ball-milled for two hours **(b);** crystalline **1 (c),** and crystalline Ph_3P (Aldrich) **(d)**.

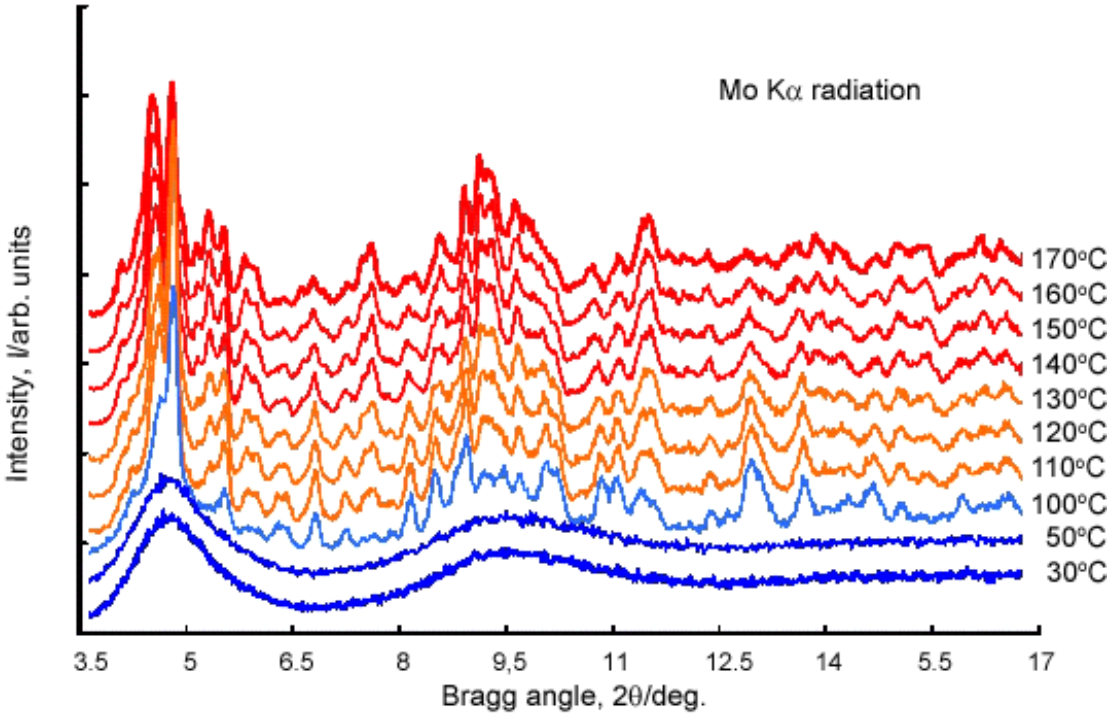

Fig. 4. The results of the *in-situ* high temperature x-ray powder diffraction study of the powder prepared by ball-milling of $PtCl_2$ with two equivalents of Ph_3P for one hour. As temperature increases from 30 to 180°C, the characteristic amorphous diffraction pattern (broad halos observed between ~3.5 – 6.5 and 8 – 12.5° 2Θ on Mo K_α radiation) transforms into that of a crystalline material. The temperature, where the appearance of the crystalline phase becomes visible from x-ray powder diffraction (100°C), is identical to that of the onset of the first exothermic event in the DTA trace of the same material (see Fig.3).

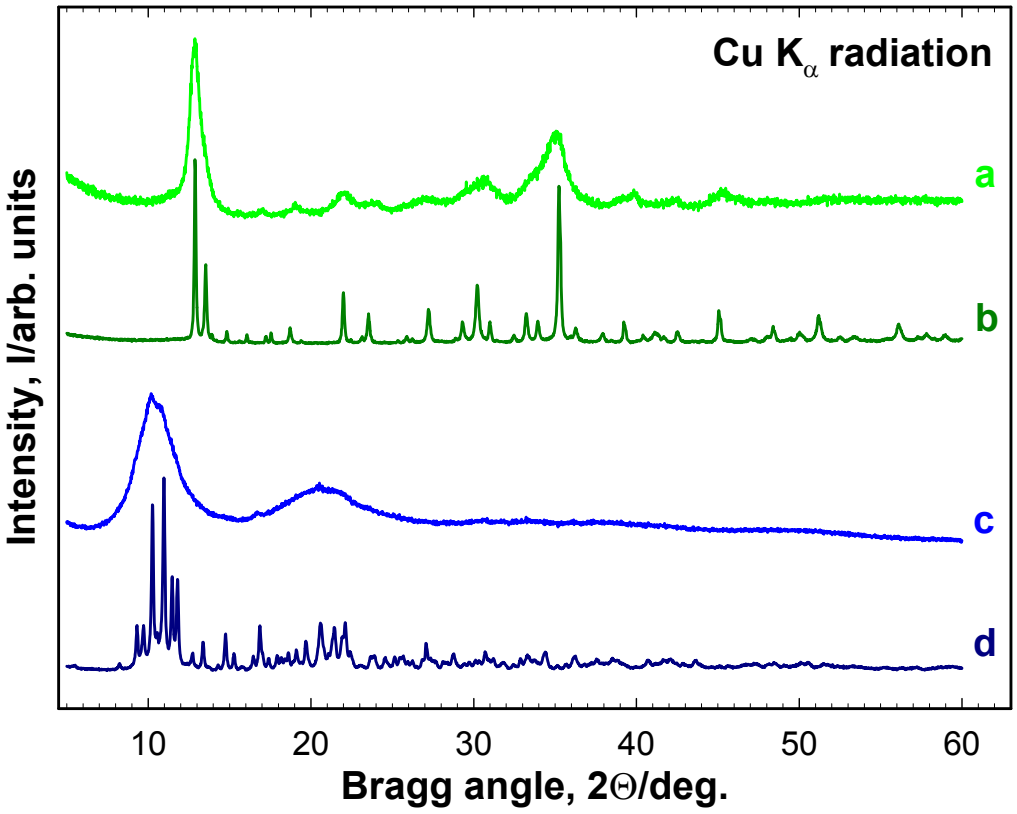

Fig. 5. The x-ray powder diffraction patterns of $PtCl_2$ ball-milled for one hour **(a)**; crystalline $PtCl_2$ (Alfa Aester) **(b)**; *cis*-$(Ph_3P)_2PtCl_2$ **1** ball-milled for two hours **(c)**; and crystalline **1 (d)**. Considerable broadening of Bragg peaks in the patterns of ball-milled compounds indicates substantial loss of crystallinity in the mechanically processed samples.