

with the value of 5.24 g/cm^3 observed for Fe_2O_3 with the corundum structure at zero pressure. Several explanations based on crystal chemical relationships have been offered for this transformation.^{7,8} The high spin-low spin transition found in Co_2O_3 offers another plausible one. The Fe^{3+} ion in the low spin state has an ionic radius of $0.55 \text{ \AA}$. From this value one can interpolate the molecular volume and the density

at zero pressure of Fe_2O_3 (low spin). The calculated density of this phase, $5.98 \pm 0.06 \text{ g/cm}^3$, seems to indicate that the transition observed by shock-wave in Fe_2O_3 is Fe_2O_3 (high spin) → Fe_2O_3 (low spin).

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L'oxyde de cobalt Co_2O_3 a été synthétisé sous haute pression. Un affinement de la structure montre que l'ion Co^{3+} se trouve dans l'état 'low-spin'. Après recuit, cet oxyde se transforme en une nouvelle phase de structure corindon et de densité plus faible, contenant l'ion Co^{3+} dans l'état 'high spin'. L'augmentation de volume correspondant est de 6.7 pour cent.