

Electronic Supplementary Information

Magnesium β -Ketoiminates as CVD Precursors for MgO Formation

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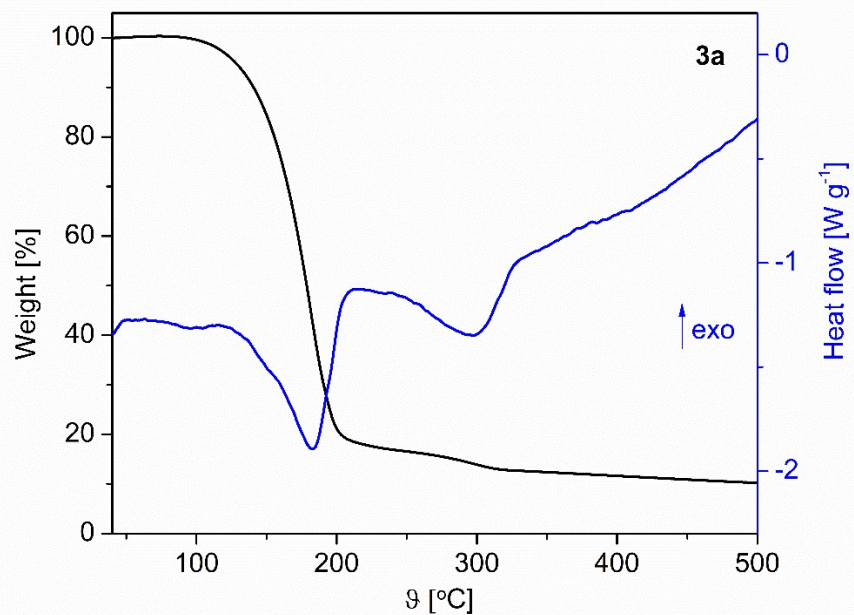


Figure S1. DSC traces of **3a** under argon (gas flow 20 mL min^{-1} , argon carrier gas flow 20 mL min^{-1} , heating rate $10 \text{ }^\circ\text{C min}^{-1}$).

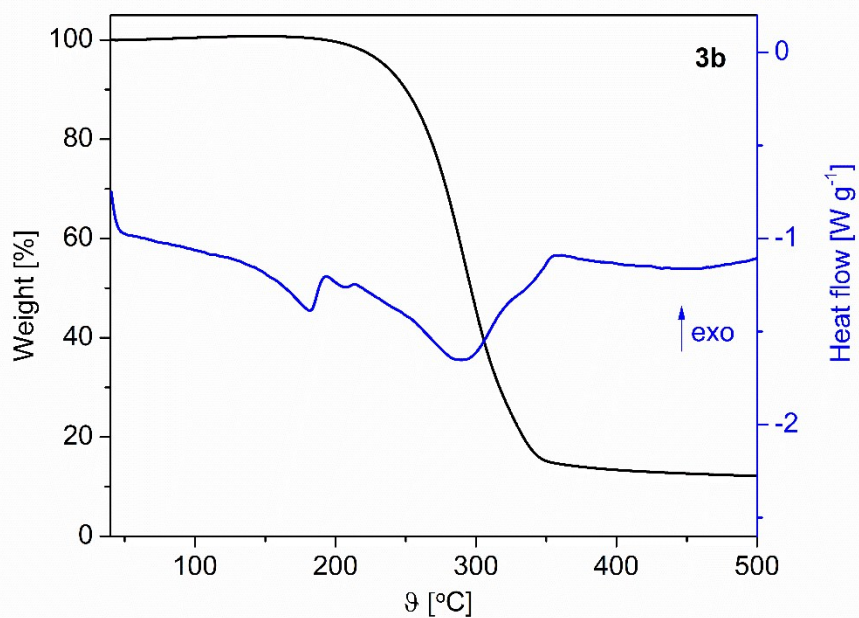


Figure S2. DSC traces of **3b** under argon (gas flow 20 mL min^{-1} , argon carrier gas flow 20 mL min^{-1} , heating rate $10 \text{ }^\circ\text{C min}^{-1}$).

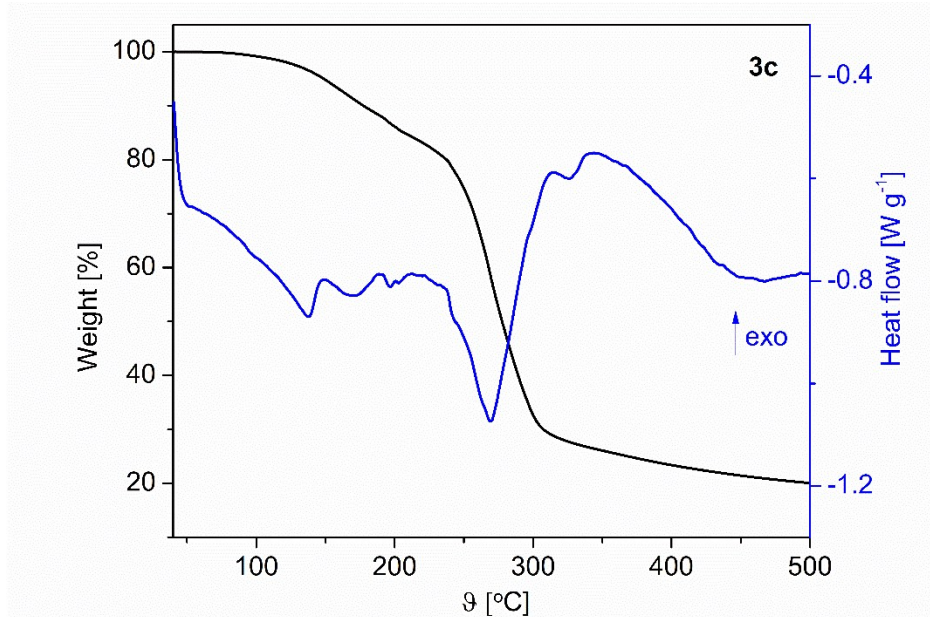


Figure S3. DSC traces of **3c** under argon (gas flow 20 mL min⁻¹, argon carrier gas flow 20 mL min⁻¹, heating rate 10 °C min⁻¹).

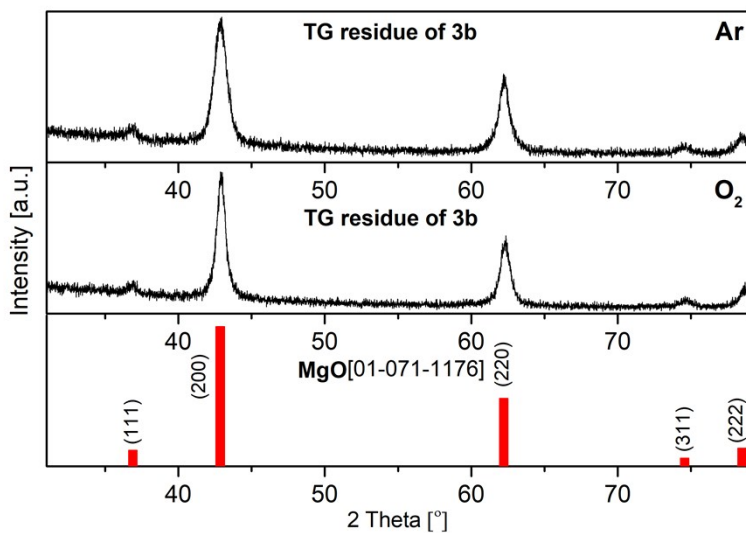


Figure S4. PXRD pattern of the TG residues of **3b** under argon (top) vs under oxygen (middle) (red: crystalline MgO (ICDD 01-071-1176). (Crystal size: top: 10 ± 1 nm, middle: 14 ± 1 nm.)

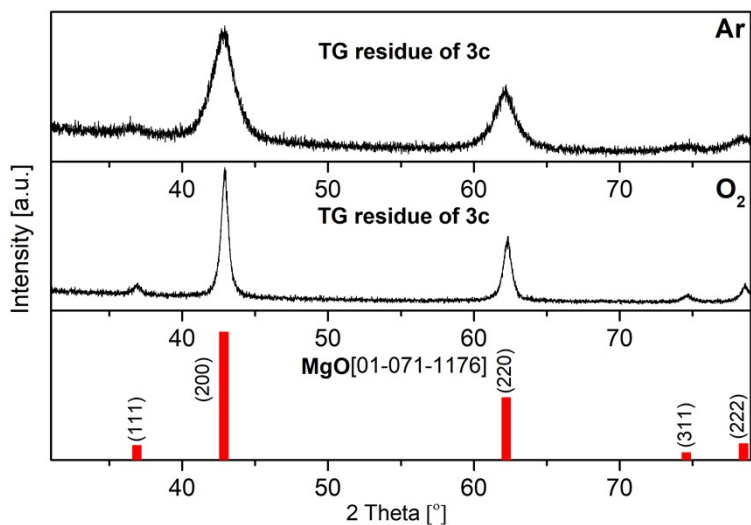


Figure S5. PXR D pattern of the TG residues of **3c** under Ar (top) vs under oxygen (middle) (red: crystalline MgO (ICDD 01-071-1176)). (Crystal size: top: 8 ± 1 nm, middle: 17 ± 1 nm.)

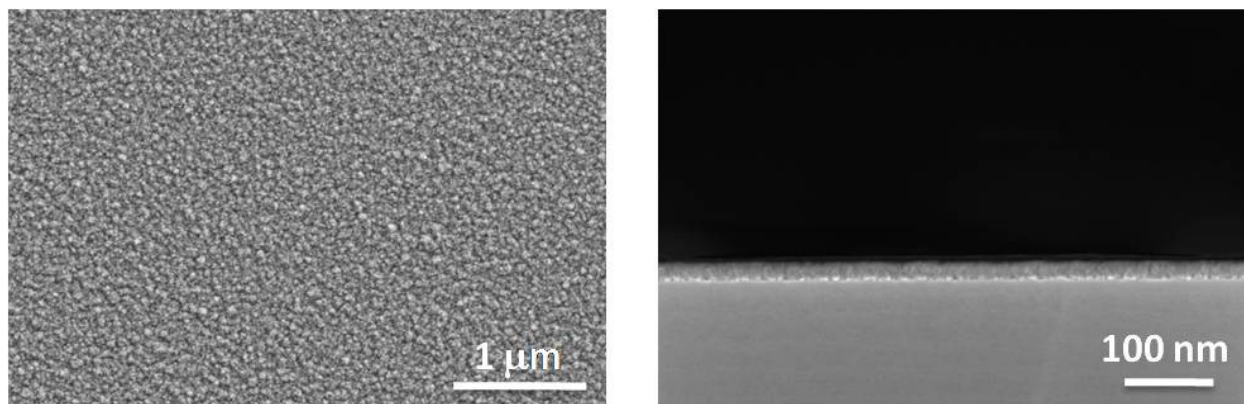


Figure S6. Left: Layer obtained from the CVD of **3a**. Right: Cross section image obtained from the CVD of **3a**, substrate temperature 450 °C, deposition time 1 h, working pressure 1 mbar, N₂ (50 mL min⁻¹), O₂ (40 mL min⁻¹).

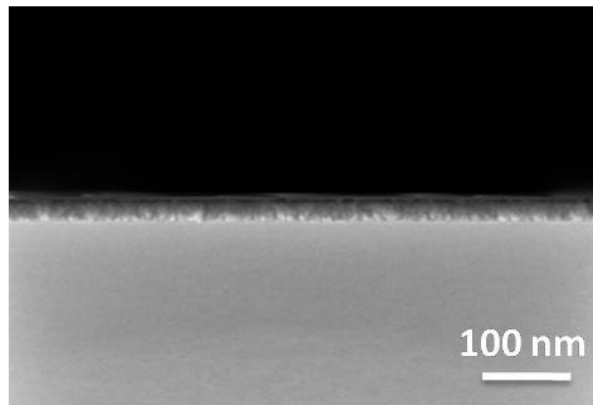
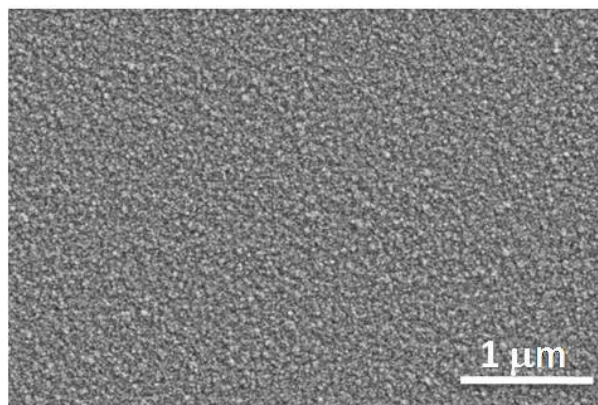


Figure S7. Left: Layer obtained from the CVD of **3c**. Right: Cross section image obtained from the CVD of **3c**, substrate temperature 450 °C, deposition time 1 h, working pressure 1 mbar, N₂ (50 mL min⁻¹), O₂ (40 mL min⁻¹).

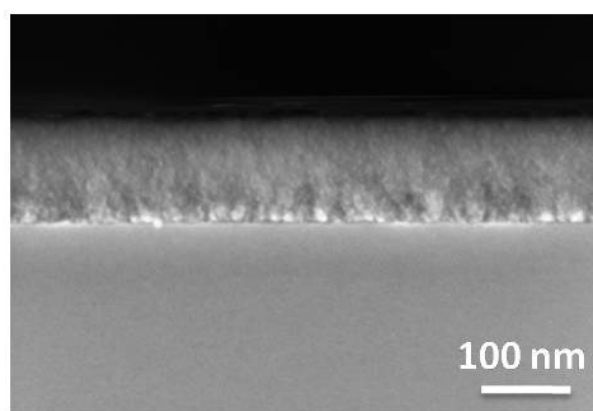
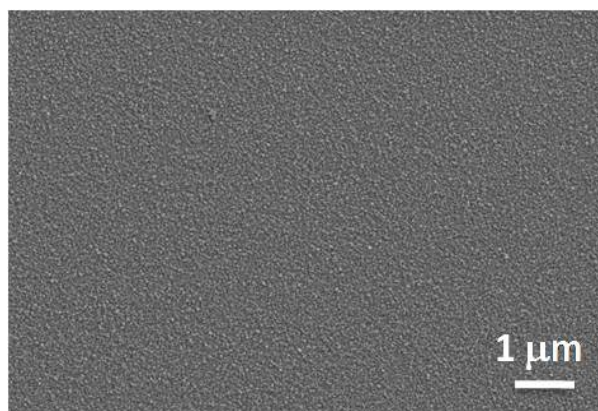


Figure S8. Left: Layer obtained from the CVD of **3c**. Right: Cross section image obtained from the CVD of **3c**, substrate temperature 450 °C, deposition time 1 h, working pressure 1 mbar, N₂ (50 mL min⁻¹).

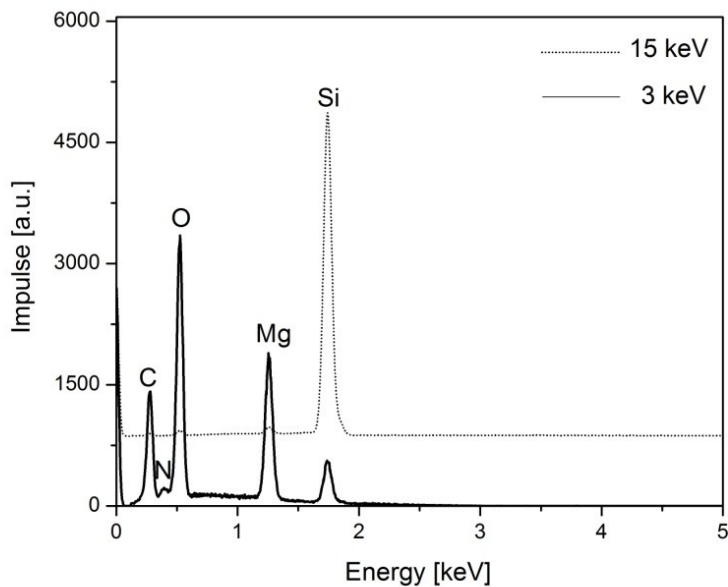


Figure S9. EDX spectra of the film obtained using **3a** as CVD precursor, N_2 (50 mL min^{-1}), substrate temperature $450 \text{ }^\circ\text{C}$.

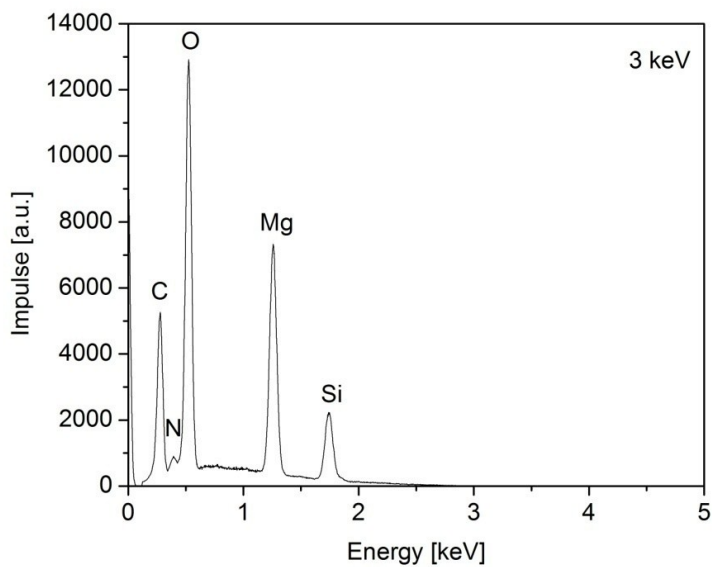


Figure S10. EDX spectra of the film obtained using **3c** as CVD precursor, N_2 (50 mL min^{-1}), substrate temperature $450 \text{ }^\circ\text{C}$.

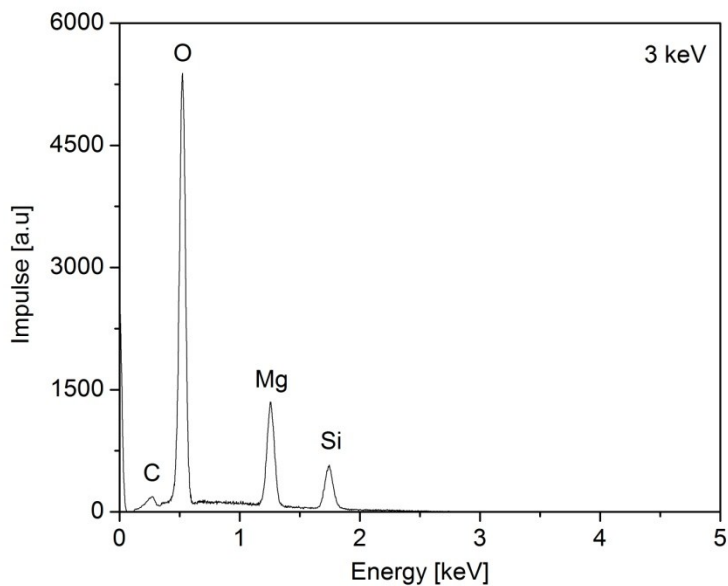


Figure S11. EDX spectra of the film obtained using **3c** as CVD precursor, N_2 (50 mL min⁻¹), O_2 (40 mL min⁻¹), substrate temperature 450 °C.

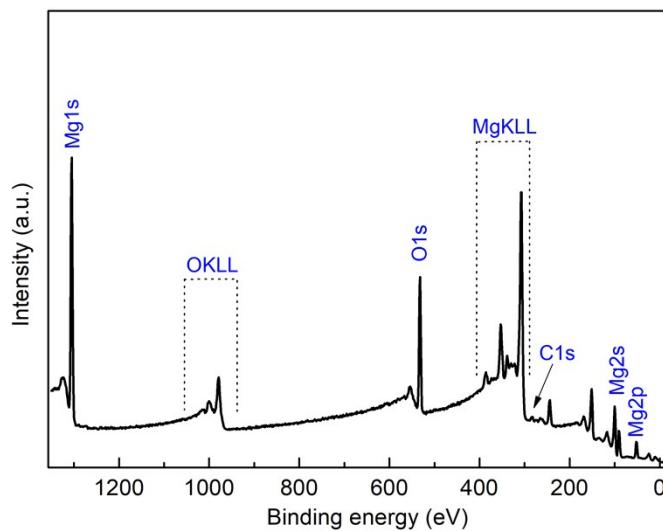


Figure S12. XPS spectra of the MgO film obtained using **3a** as CVD precursor, N_2 (50 mL min⁻¹), O_2 (40 mL min⁻¹), substrate temperature 450 °C, after 2 min sputtering (Ar^+ , 4.0 keV).

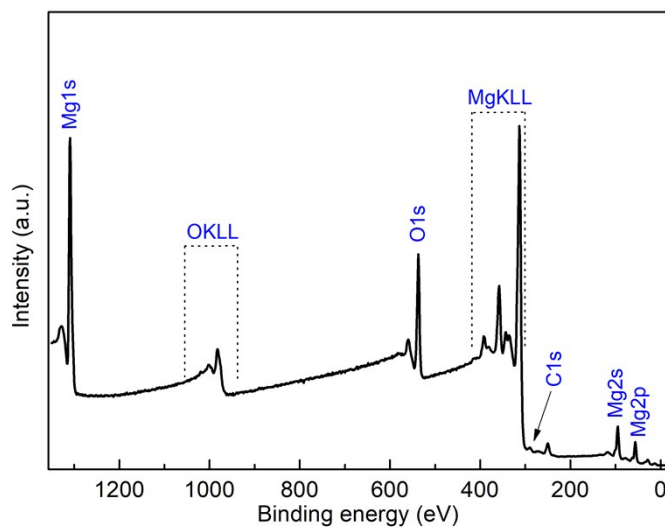


Figure S13. XPS spectra of the MgO film obtained using **3c** as CVD precursor, N₂ (50 mL min⁻¹), substrate temperature 450 °C, after 2 min sputtering (Ar⁺, 4.0 keV).

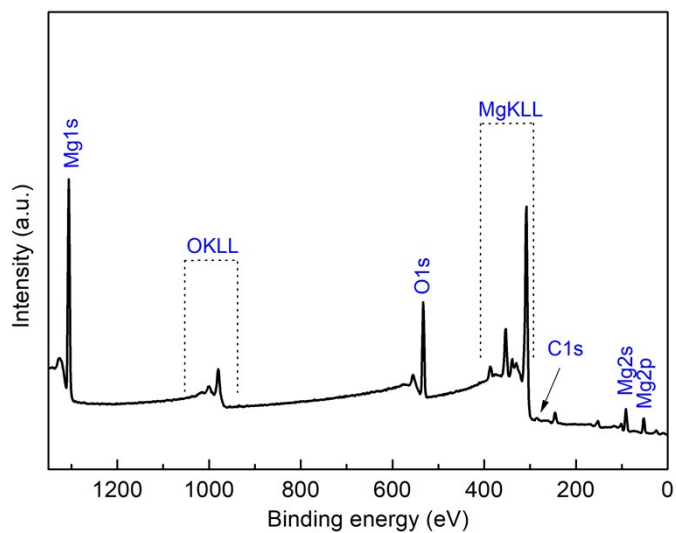


Figure S14. XPS spectra of the MgO film obtained using **3c** as CVD precursor, N₂ (50 mL min⁻¹), O₂ (40 mL min⁻¹), substrate temperature 450 °C, after 2 min sputtering (Ar⁺, 4.0 keV).

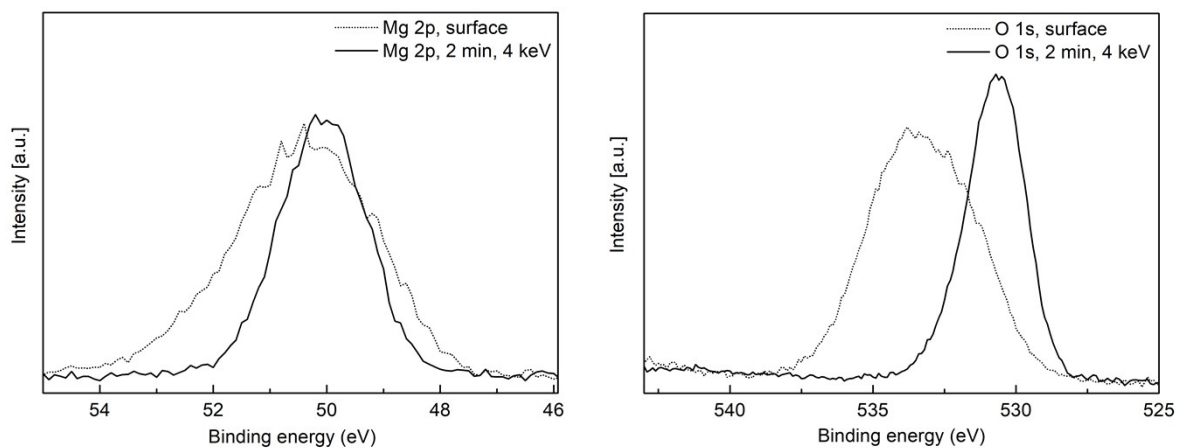


Figure S15. Detailed XPS spectra of the surface and layer composition of the film obtained from **3a** as CVD precursor, N_2 (50 mL min^{-1}), O_2 (40 mL min^{-1}), substrate temperature $450 \text{ }^\circ\text{C}$, after 2 min sputtering (Ar^+ , 4.0 keV).

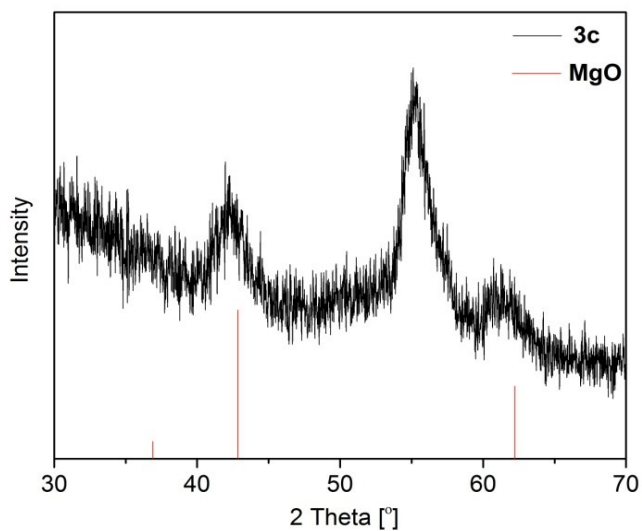


Figure S16. PXRD pattern of the layer obtained using **3c** as CVD precursor, N_2 (50 mL min^{-1}), deposition time 1 h, working pressure 1 mbar, substrate temperature $450 \text{ }^\circ\text{C}$.