

Supplementary Information File for the paper:

## On the rehydration of organic layered double hydroxides and the dependence of the memory effect from calcination temperature.

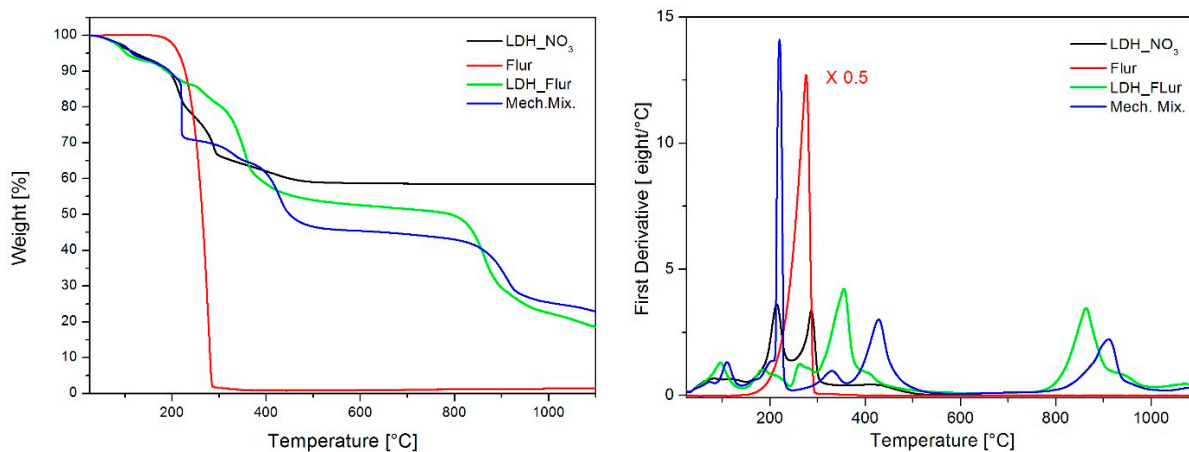


Figure SI-1: TGA plot (left) and first derivative (right) of the samples LDH\_NO<sub>3</sub> (black), Flurbiprofen (red), LDH\_Flur (green) and of the mechanical mixture of LDH\_NO<sub>3</sub> and Flurbiprofen (blue)

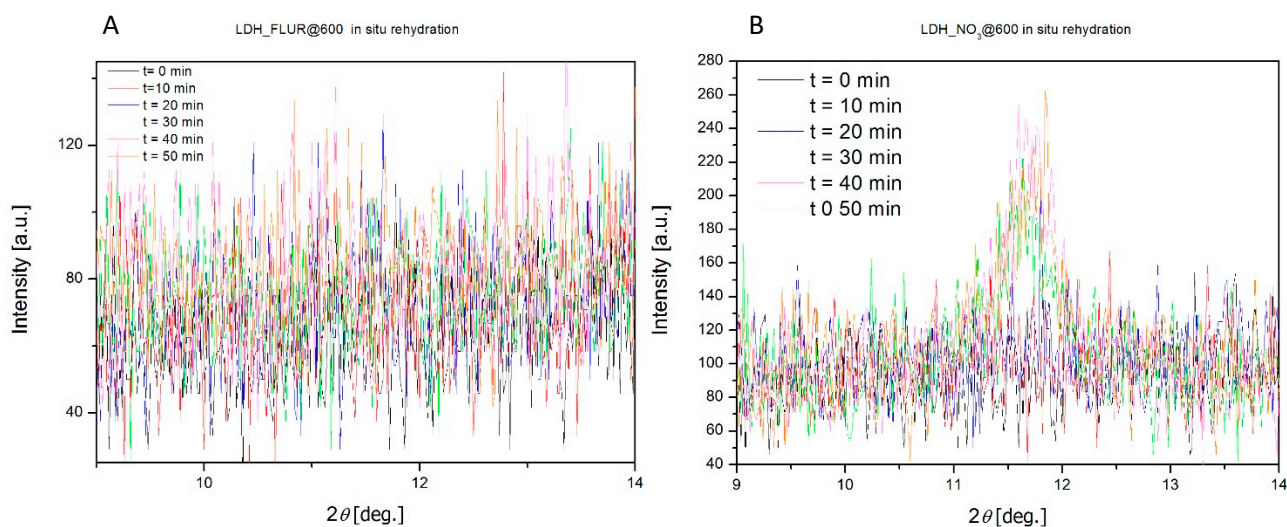


Figure SI-2: XRPD patterns collected during the in situ rehydration experiments on LDH\_FLUR@600 (A) and LDH\_NO<sub>3</sub>@600 (B). Selection of one pattern every 10 minutes.

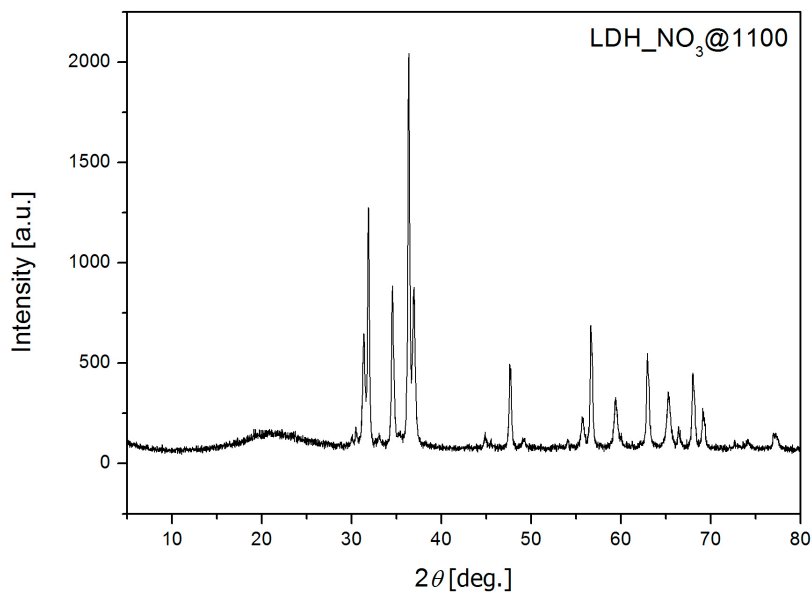


Figure SI-3: Plot of the XRPD pattern of LDH\_NO<sub>3</sub> after calcination at 1100°C.

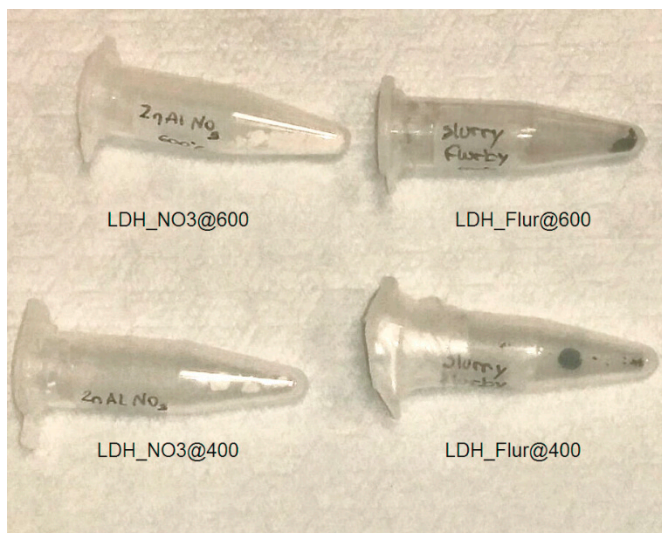


Figure SI-4: Picture of the samples after calcination showing that the inorganic calcined LDHs remain white while organic intercalated LDHs are black after the calcination.

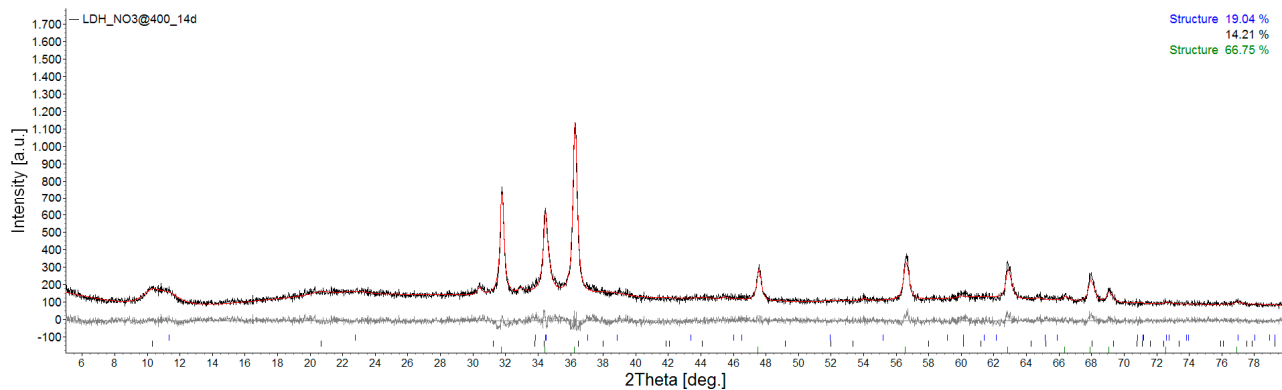


Figure SI-5. Plot of the Rietveld fit on the XRPD pattern of the LDH\_FLUR@400\_14d sample. Experimental pattern in black, calculated curve in red. Peak tickmarks of the LDH phases in blue and black, zinc oxide in green.

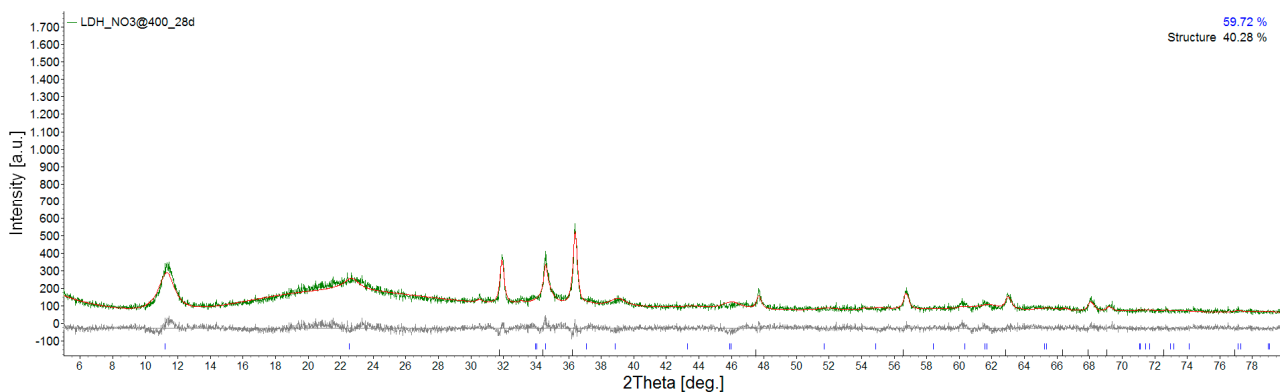


Figure SI-6. Plot of the Rietveld fit on the XRPD pattern of the LDH\_FLUR@400\_14d sample. Experimental patten in green, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

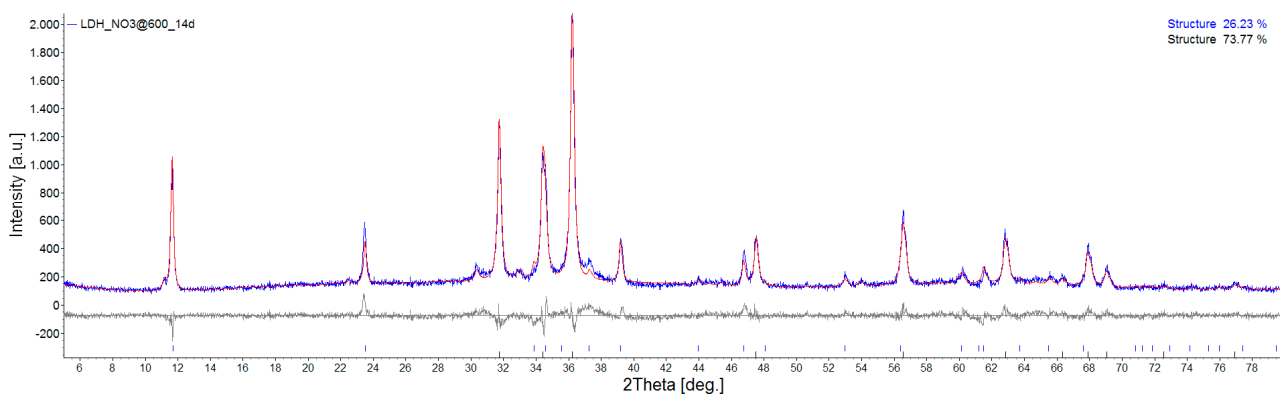


Figure SI-7. Plot of the Rietveld fit on the XRPD pattern of the LDH\_FLUR@600\_14d sample. Experimental patten in blue, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

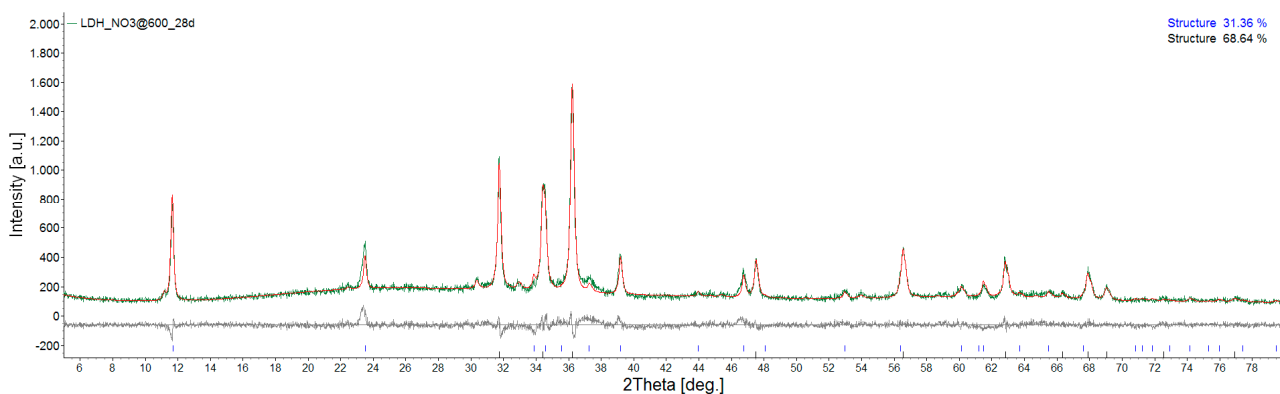


Figure SI-8. Plot of the Rietveld fit on the XRPD pattern of the LDH\_FLUR@600\_28d sample. Experimental patten in green, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

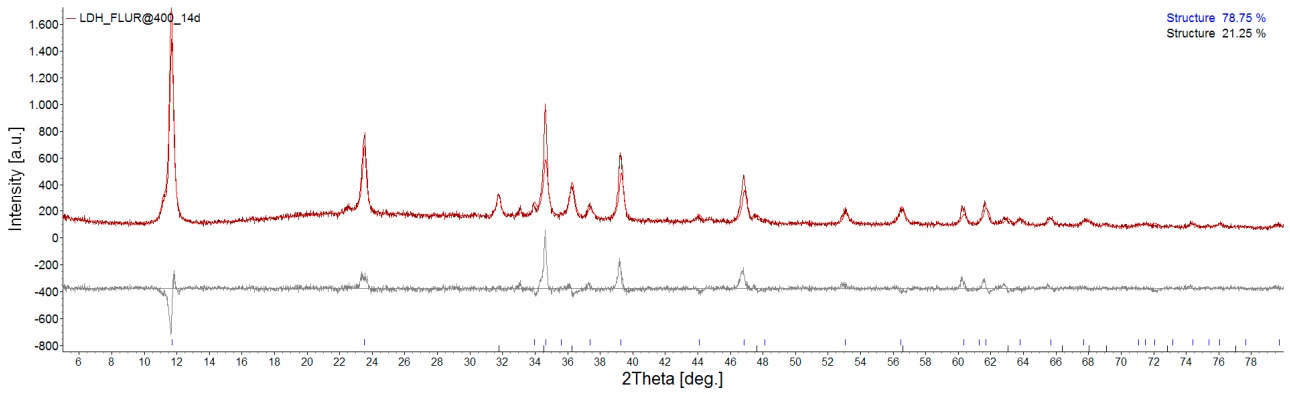


Figure SI-9. Plot of the Rietveld fit on the XRPD pattern of LDH\_NO<sub>3</sub>@400\_14d sample. Experimental pattern in brown, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

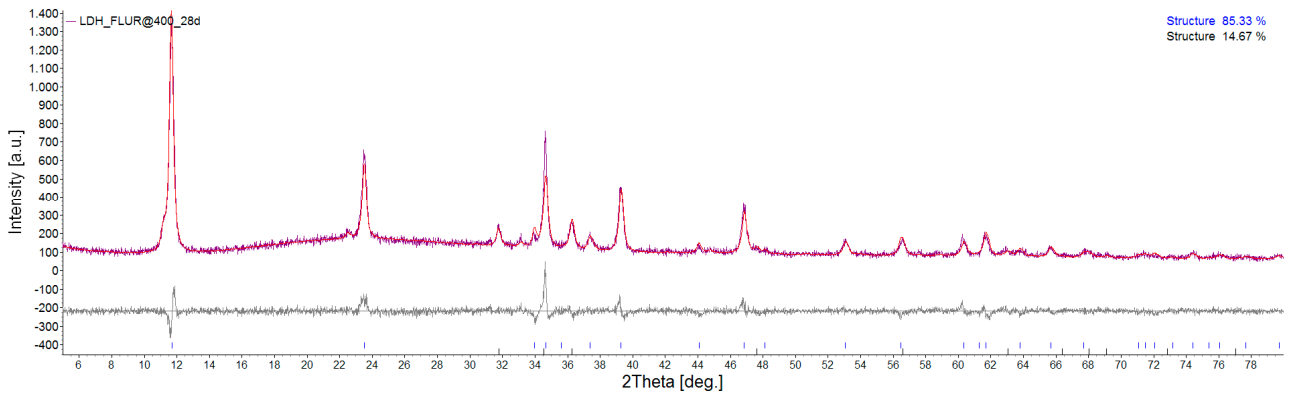


Figure SI-10. Plot of the Rietveld fit on the XRPD pattern of the LDH\_Flur@400\_28d sample. Experimental pattern in violet, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

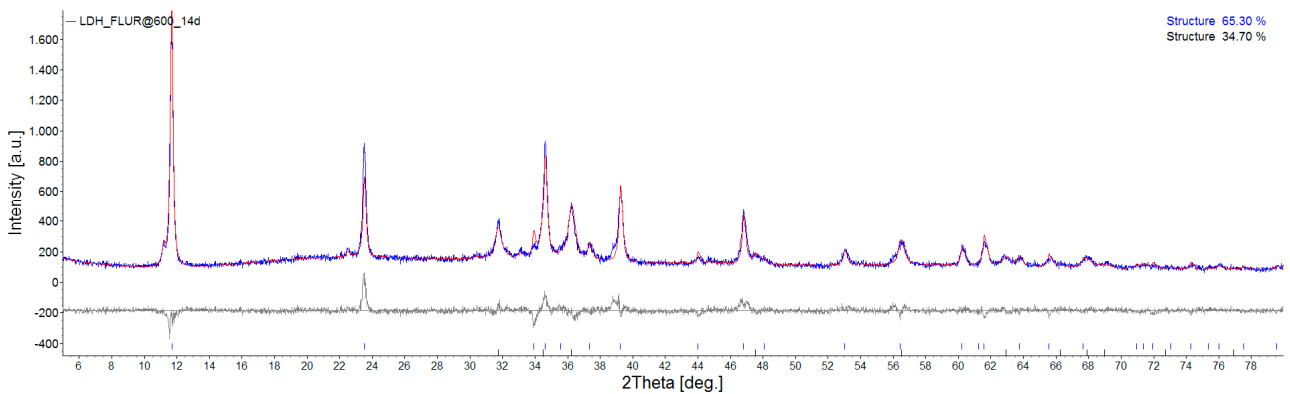


Figure SI-11. Plot of the Rietveld fit on the XRPD pattern of LDH\_Flur@600\_14d sample. Experimental pattern in blue, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

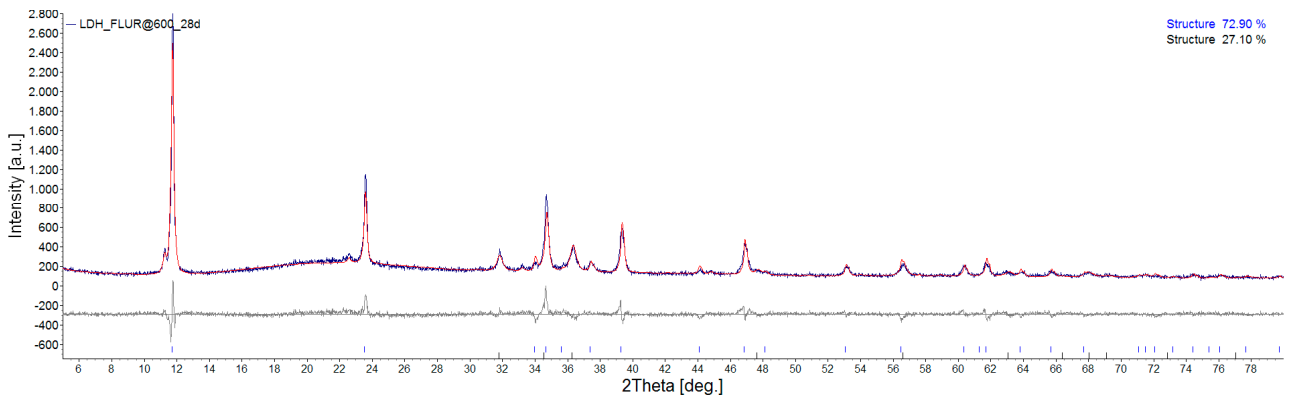


Figure SI-12. Plot of the Rietveld fit on the XRPD pattern of LDH\_Flur@600\_28d sample. Experimental pattern in blue, calculated curve in red. Peak tickmarks of the LDH phase in blue, zinc oxide in black.

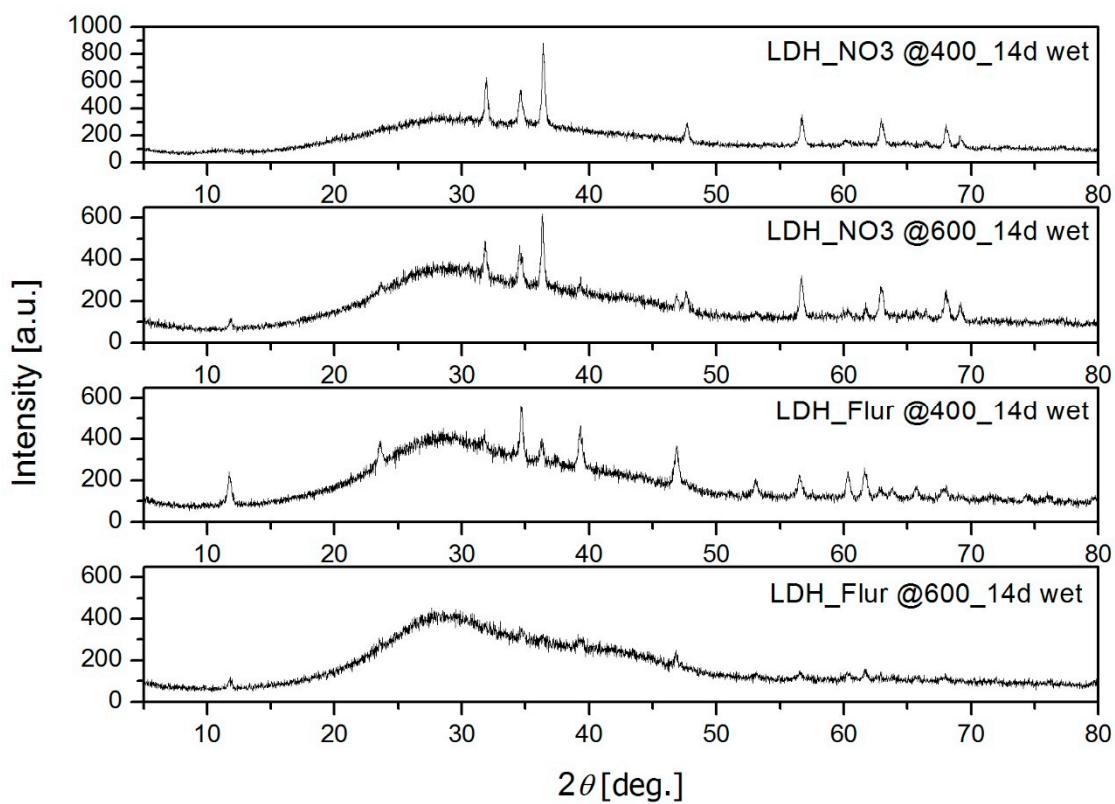


Figure SI-13 Comparison of the XRPD patterns of the wet samples after 14 days of rehydration.