

Supporting Information

New insights into the multilevel structure and phase transitions of synthetic organoclays

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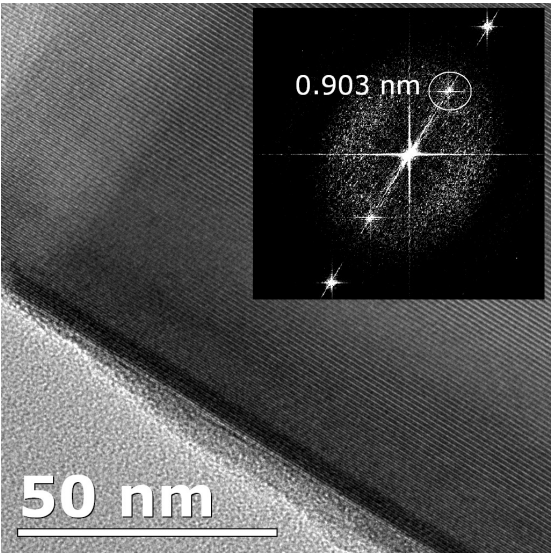


Figure S1. TEM camera calibration check image recorded for an asbestos standard (expected d₍₀₀₂₎ = 0.903 nm)

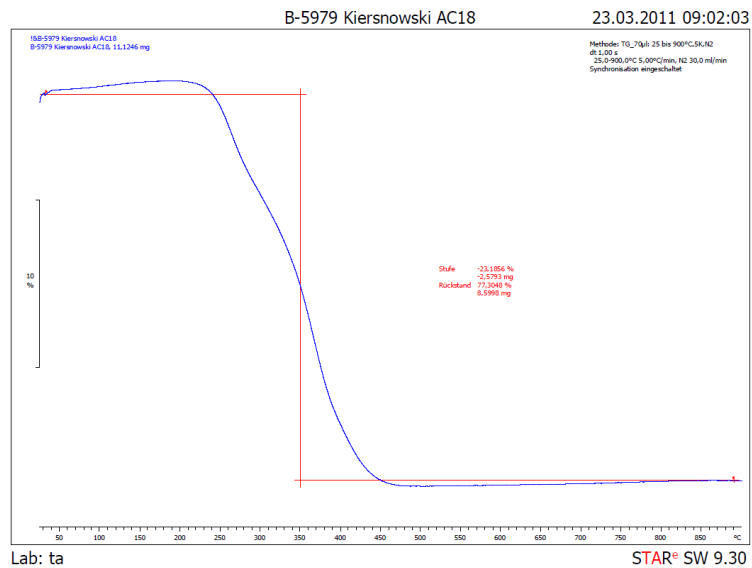
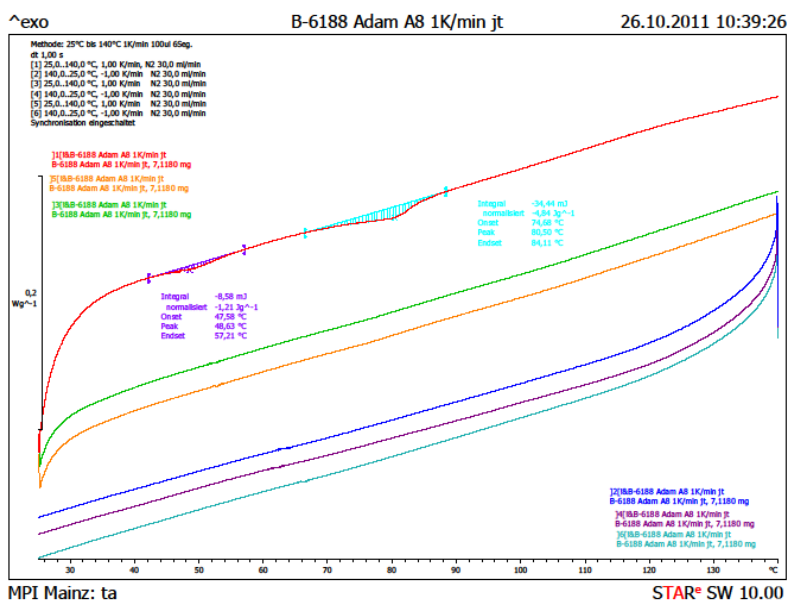
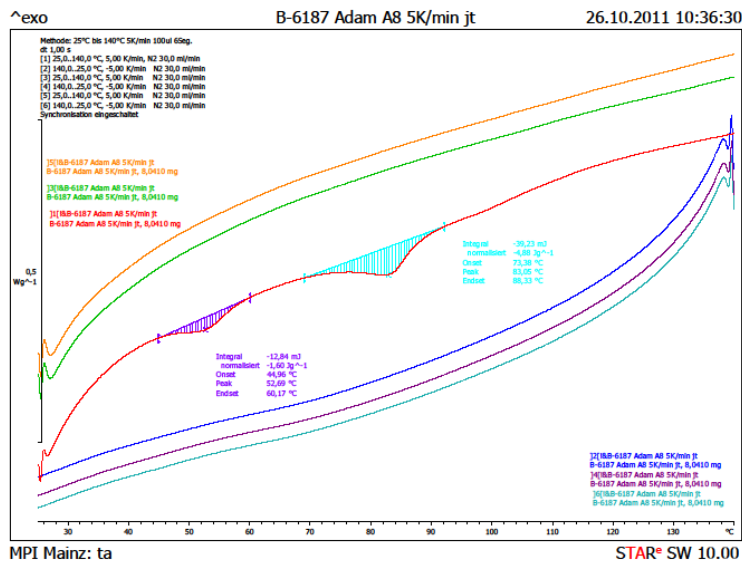


Figure S2. TGA plot of M1C18 complex



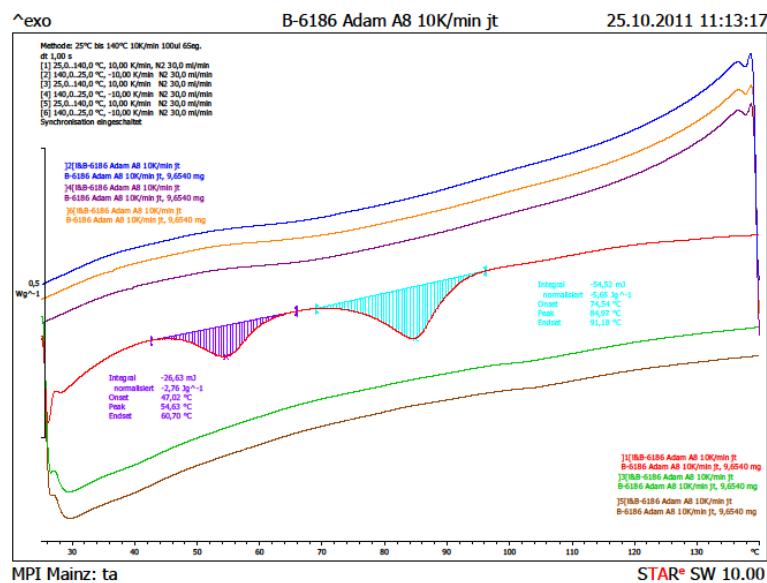
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Figure S3. DSC thermograms of M1C18 complex. Heating/cooling ramp: 1K/min



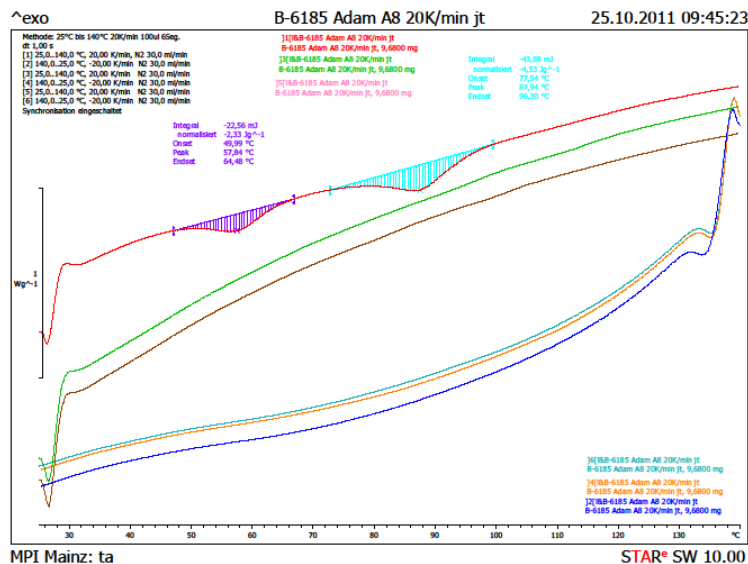
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Figure S4. DSC thermograms of M1C18 complex. Heating/cooling ramp: 5K/min



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Figure S5. DSC thermograms of M1C18 complex. Heating/cooling ramp: 10K/min



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Figure S6. DSC thermograms of M1C18 complex. Heating/cooling ramp: 20K/min

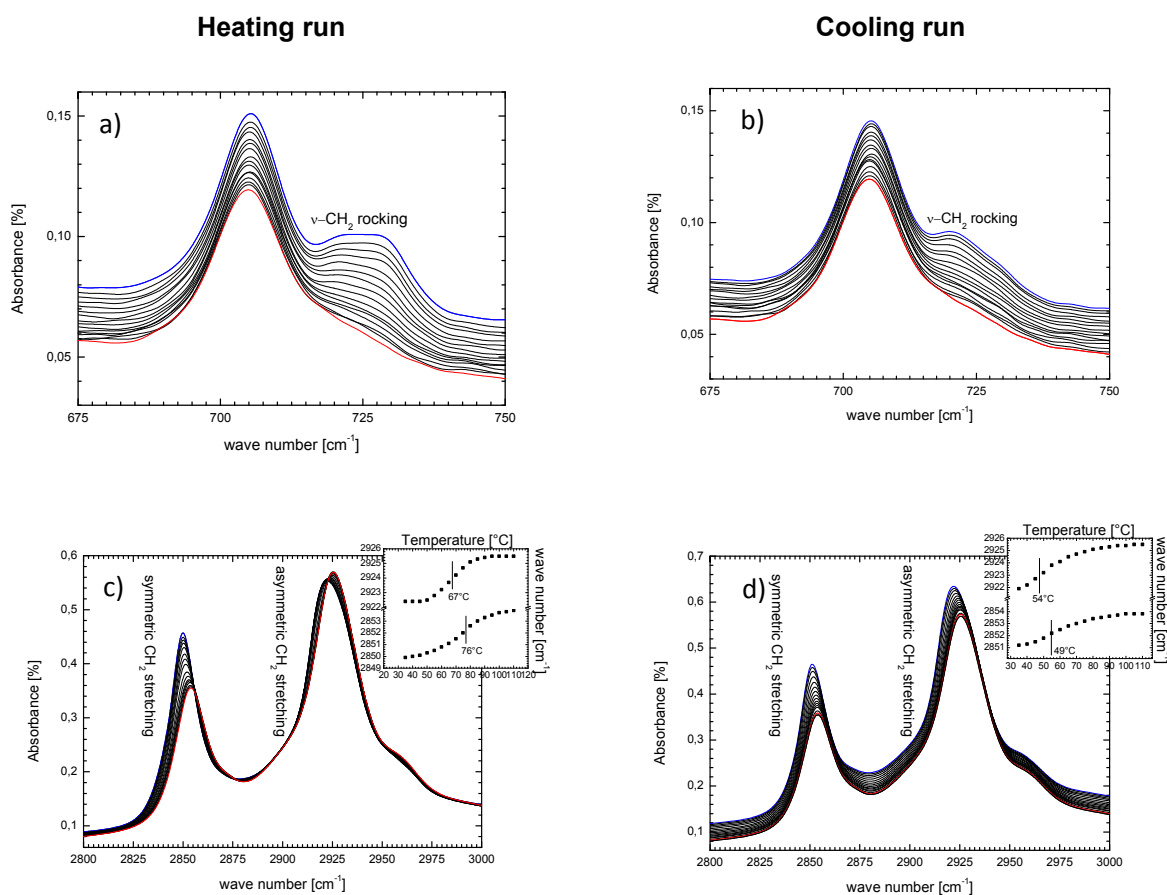


Figure S7. FTIR spectra of M1C18 complex recorded during first heating and cooling cycles. Insets in plots c and d show variation in peak positions upon temperature.

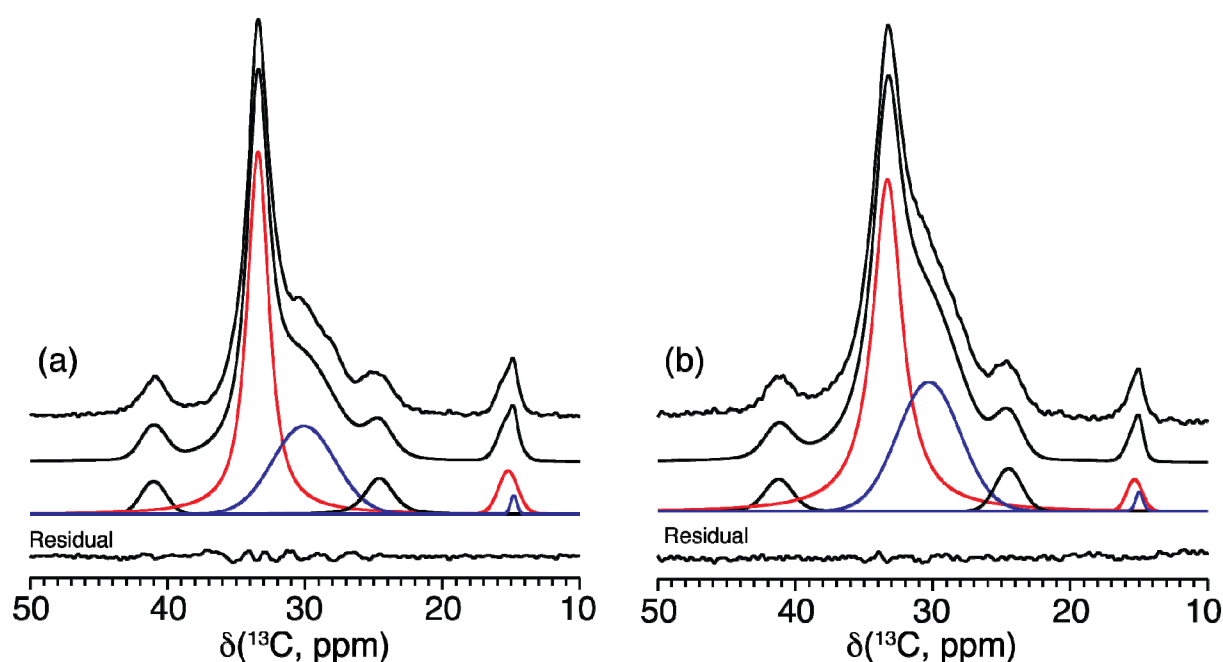


Figure S8. Deconvoluted solid-state $^{13}\text{C}\{^1\text{H}\}$ CP/MAS NMR spectra of M1C18 recorded at 11.75 T (500.11 MHz for ^1H) where (a) is before and (b) after the first heating (see Figure 8). Red and blue curves indicate positions of trans and gauche fractions of the methyl and main chain methylene groups for the intercalated 1C18 chains, respectively. Signal positions, linewidths, and corresponding integrals are given in Table S1.

Table S1. Isotropic chemical shifts, linewidths, and integrals from the deconvoluted spectra in Figure S7.^a

Assignment	Before			After		
	δ_{iso} (ppm)	Linewidth (Hz)	Integral (Arb.)	δ_{iso} (ppm)	Linewidth (Hz)	Integral (Arb.)
CH ₃ , gauche	14.8	69	0.93	14.9	80	0.65
CH ₃ , trans	15.2	208	6.76	15.3	167	2.28
CH ₂ , end	24.6	300	9.39	24.5	283	5.19
CH ₂ , gauche	30.1	674	43.4	30.3	673	37.5
CH ₂ , trans	33.4	238	85.9	33.3	323	64.8
CH ₂ , head	41.0	268	6.42	41.2	300	3.80

^aAssignment “head” and “end” refers to the methylene position with respect to the NH_3^+ -head group.