

In situ Polymerization of Linseed Oil-based Composite Film: Enhancement of Mechanical and Water Barrier Properties by the Incorporation of Cinnamaldehyde and Organoclay

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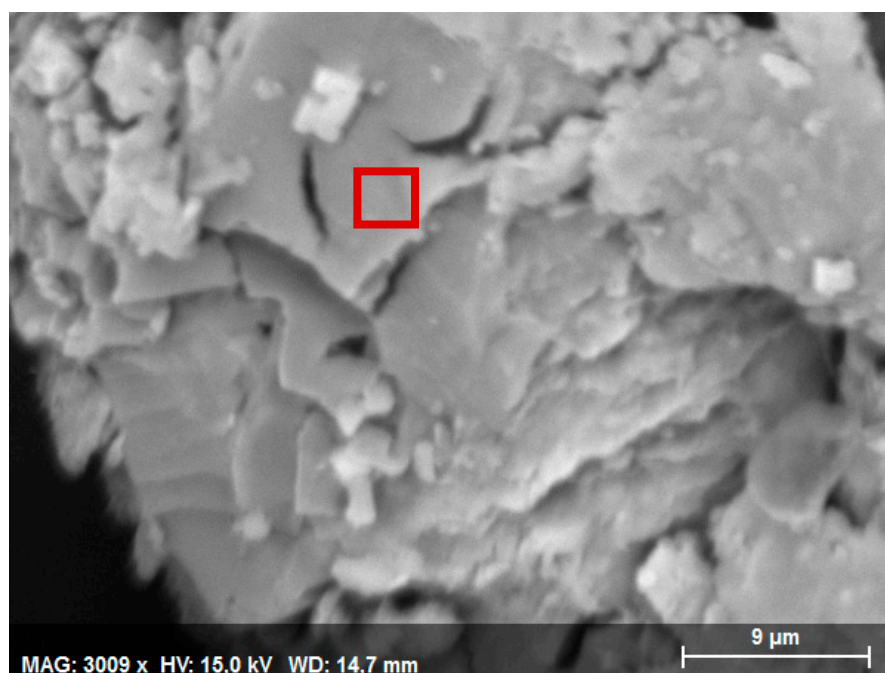
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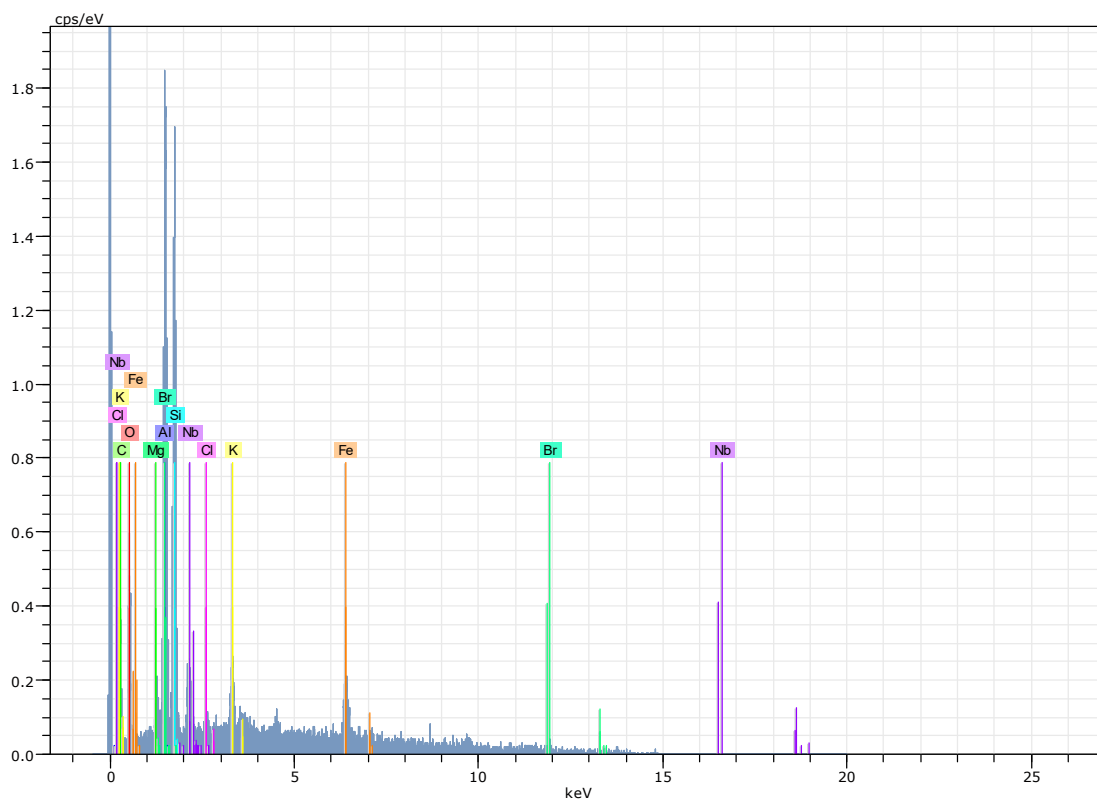
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Figure S1: SEM images and elementary analysis

SEM images of clays at the surface of the composite film. The elementary analysis concerns the red square.



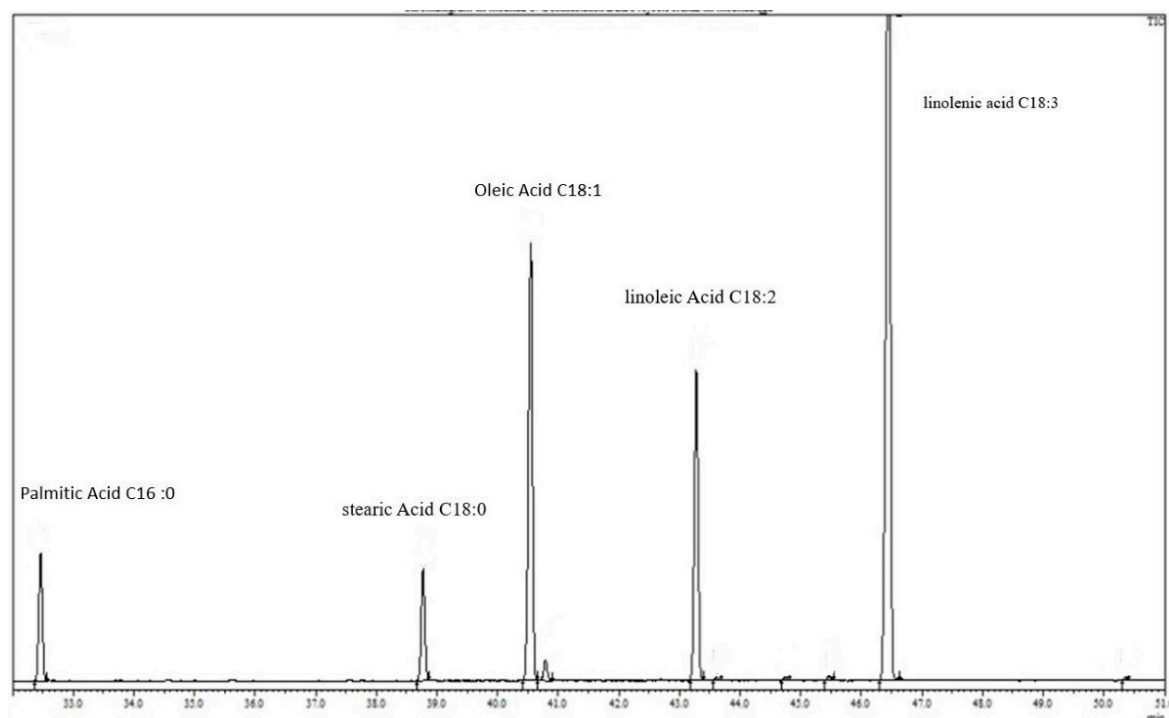


Spectrum: C50M5

El	AN	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]	Error (1 Sigma) [wt.%]
C	6	K-series	17,63	20,08	41,82	5,00
O	8	K-series	12,96	14,76	23,07	3,11
Mg	12	K-series	0,61	0,70	0,72	0,10
Al	13	K-series	2,32	2,65	2,45	0,19
Si	14	K-series	17,30	19,71	17,55	0,84
Cl	17	K-series	0,36	0,41	0,29	0,07
K	19	K-series	2,00	2,28	1,46	0,14
Fe	26	K-series	3,37	3,84	1,72	0,21
Br	35	L-series	26,66	30,36	9,51	1,40
Nb	41	L-series	4,58	5,21	1,40	0,29
Total:			87,80	100,00	100,00	

The elementary analysis showed the presence of Al, Si, Br, Fe which are the main element present in the modified clay. Such result indicates clearly the presence of the clay at the surface of the clay. The high amount of C is due mainly to the coating which was made to increase the resolution of the images

Figure S2: GC-MS of the linseed oil



Carbon length	Fatty Acids	FA composition (%)
Saturated FAs		
C16:0	Palmitic Acid	5.87
C18:0	Stéaric Acid	5.15
C20:0	Arachidic Acid	0.12
C22:0	Béhénic Acid	0.1
Σ saturated FAs		11.24
Monounsaturated FAs		
C18:1 Δ 9c	Oleic Acid	22.04
C18:1 Δ 11c	Vaccenic Acid	0.98

Σ mono_unsaturated FAs		23.02
Polyunsaturated FAs		
C18:2 Δ 9.12	linoleic Acid ω 6	14.90
C18:2 Δ 11.14	11.14 octadecadienoic Acid	0.10
C20:3 Δ 11. 14.17	Eicosatrienoic	0.20
C18:3 Δ 9.12.15	α linolenic Acid ω 3	50.46
Σ Poly-unsaturated FAs		65.66
Unsaturated /saturated		7.88
ω 3/ ω 6		3.38