Spectroscopic Chemical Insights Leading to the Design of Versatile Sustainable Composites for Enhanced Marine Application

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Electronic Supporting Information

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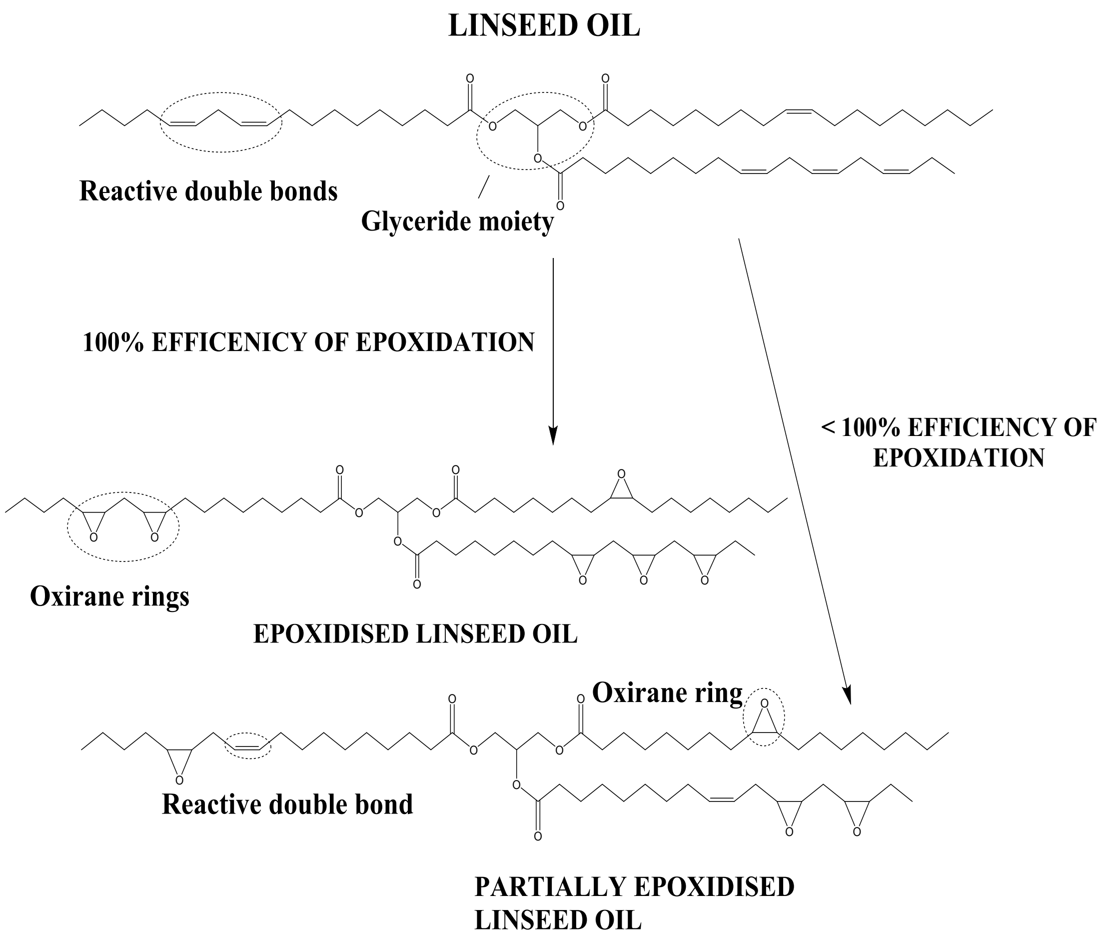
Scheme S1 Chemical structures outlining the degree of epoxidation of linseed oil that can directly influence the curing process



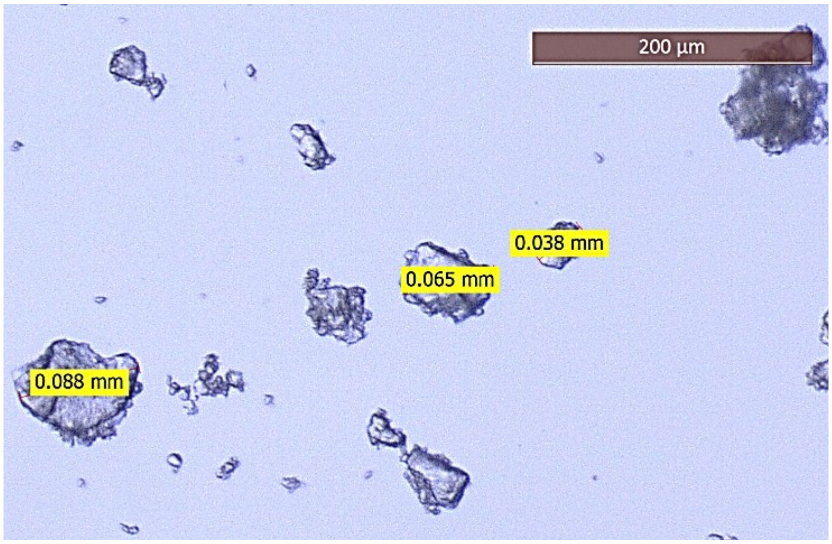


Figure S1 Average grain size of the powdered resin (measured with a Leica M205C microscope)

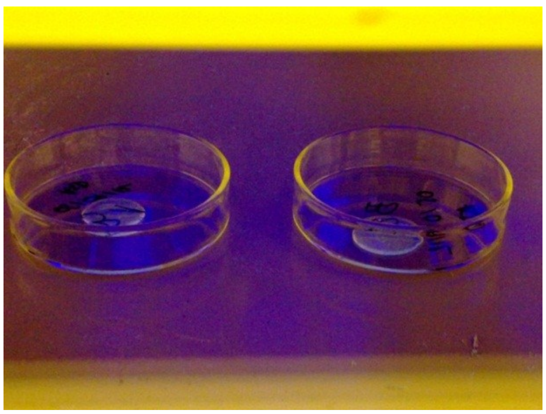


Figure S2 UV Curing the epoxidised linseed oil based resin

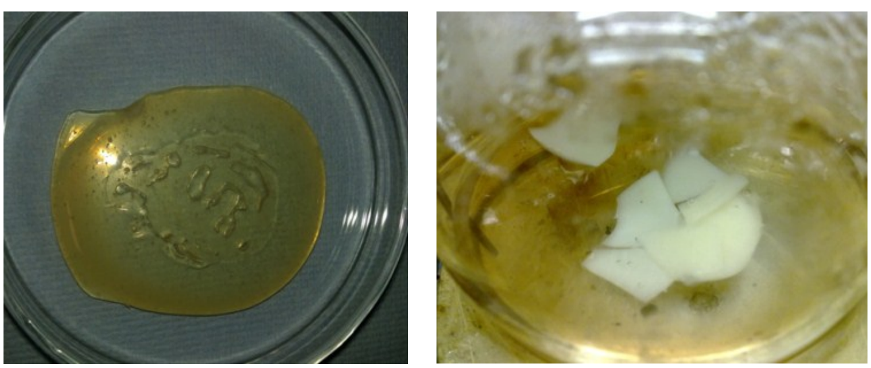


Figure S3 Resin sample after UV curing (left) and after subsequent immersion in distilled water at 40°C for 2 weeks (right). After 2 weeks of immersion samples gradually lost their transparency The ingress of water is suspected to cause the scattering of light.

Table S1 Comparison of glass transition temperatures, Tg, of differently treated samples

Sample	Tg
Reference sample	44°C
Hygrothermally aged 7 weeks (distilled water, 40°C)	43°C
Hygrothermally aged 6 weeks (salty water – 3.5% NaCl)	40°C
Hygrothermally aged 5 weeks (room temperature)	43°C
pH4	44°C
pH10	45°C
UV aged 24h	45°C
UV aged 4 days	46°C
UV aged7 days	43°C

MOLECULAR DYNAMICS SIMULATIONS

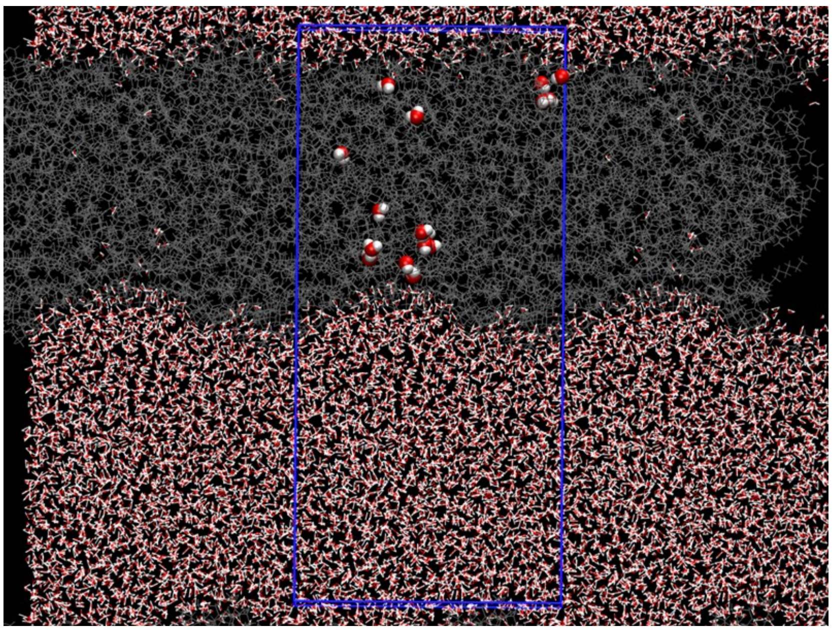
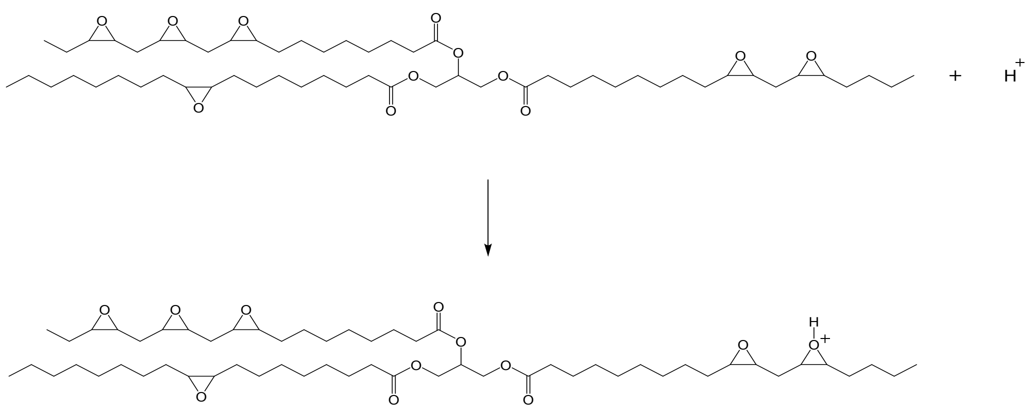


Figure S4 Snapshot from the periodic MD simulations of the ELO polymer in water showing water permeation into a periodic slab of ELO monomers. Water molecules that have permeated into the bulk ELO are highlighted. The entire periodic cell is highlighted with a blue box.

Scheme S2 Proposed mechanism of ELO polymerisation initiation



Scheme S3 Proposed mechanism of propagation steps during process of ELO polymerisation