Electronic Supplementary Material (ESI) for Green Chemistry.

A rigid plant oil-based thermoset with a furfural-derived cyclobutane cross-linker.

Jonathan Tellers[a], *Nicolas Sbirrazzuoli*[a], *and Nathanael Guigo**[a]

[a]Institut de Chimie de Nice, Université Côte d'Azur, CNRS, UMR 7272, 06108 Nice, France. E-mail : Nathanael.GUIGO@univ-cotedazur.fr;

Supporting information

Figures:

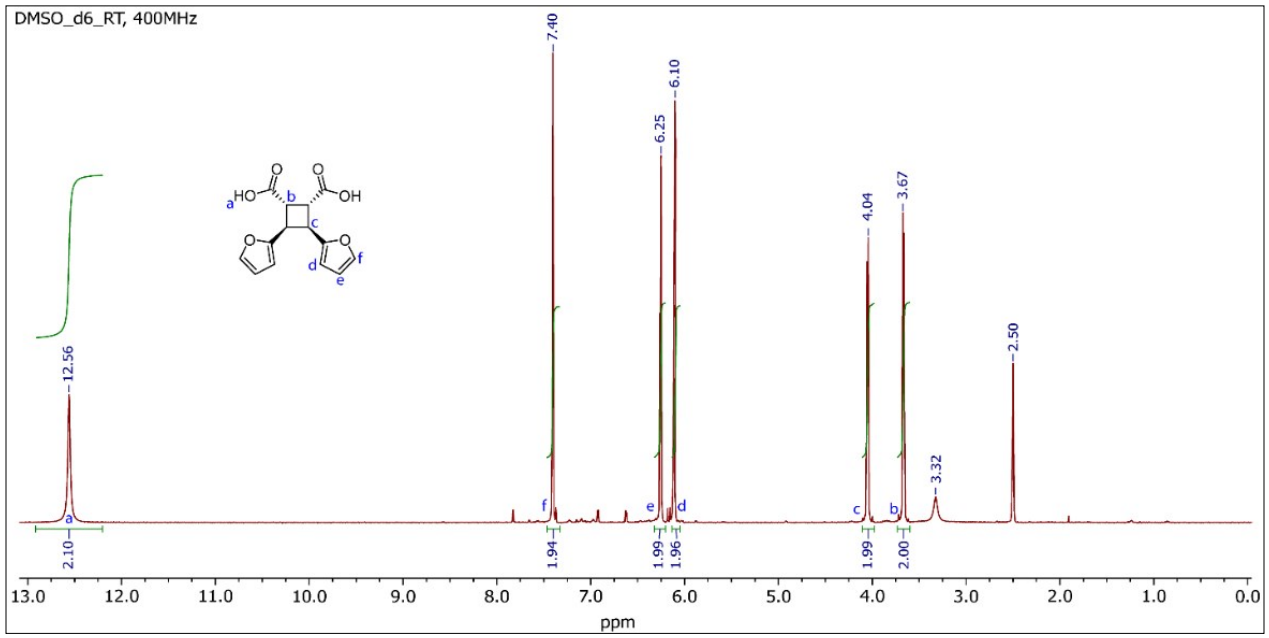

Figure S1. [1]H-NMR spectrum of CBDA-2 (400 MHz, DMSO_d6, RT).

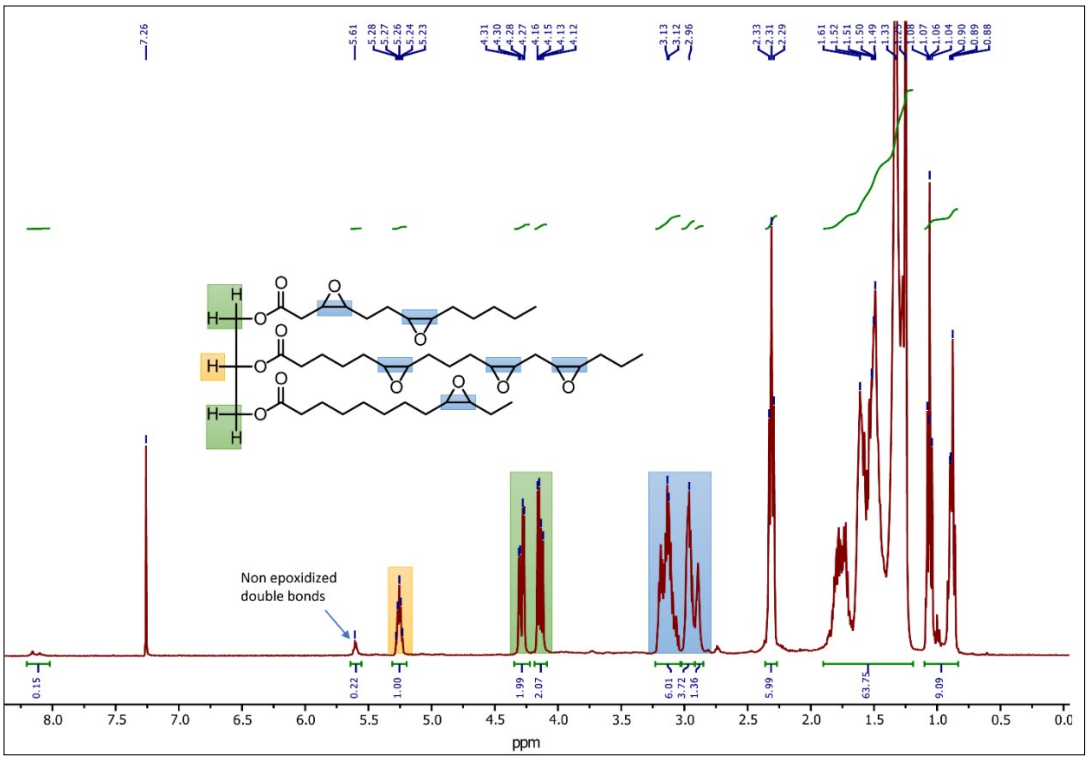

Figure S2. ^{1}H-NMR spectrum in $CDCl_3$ of ELO batch used in this study.

Figure S3. Image of the CBDA-2/ELO slush after mixing (left) and filled rectangular mold inside the sonicator (right). The mold was elevated such that only the bottom half was immersed in water.

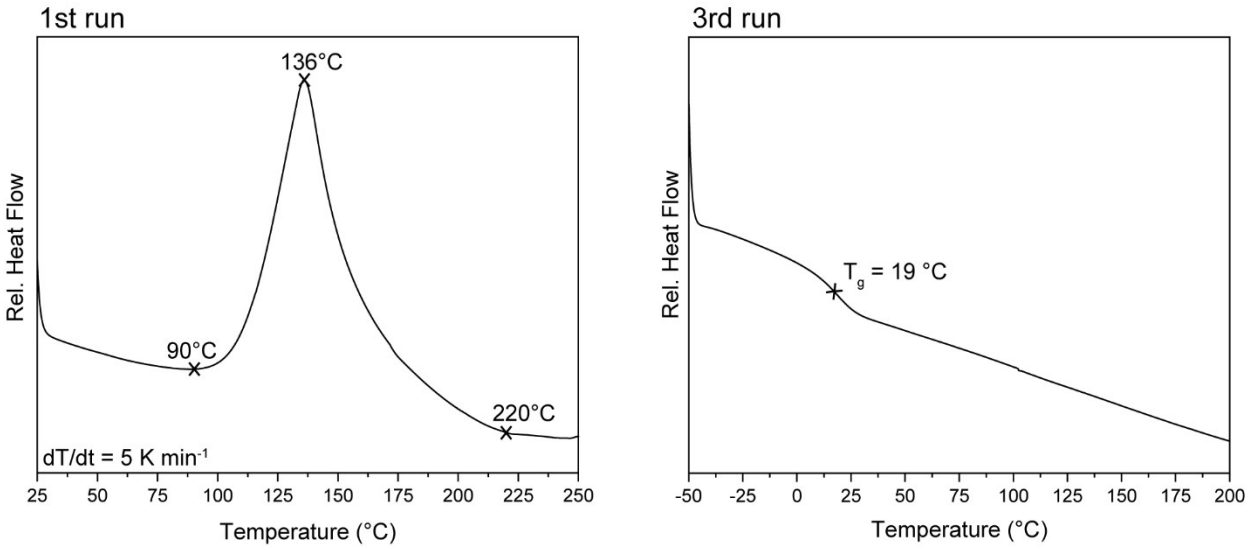

Figure S4. DSC-Scan of a mixture of CBDA-2/ELO (R_{ELO} = 0.8) scanned from 25 °C to 250 °C at 5 K min^{-1} (1st run, curing) and from -50 °C to 200 °C (3rd run, determination of T_g). Crosses highlight onset, peak, endset, and glass transition temperature.

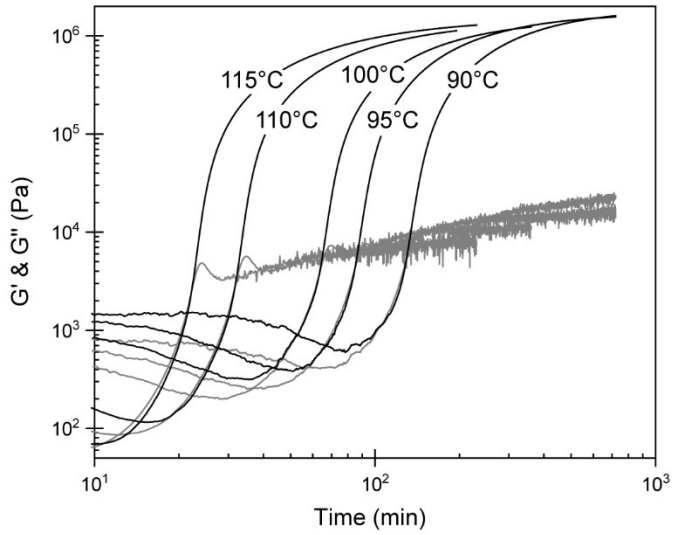

Figure S5. Storage (G') and Loss (G'') modulus as a function of time for different isothermal curing temperatures (90 °C, 95 °C, 100 °C, 110 °C, and 115 °C).

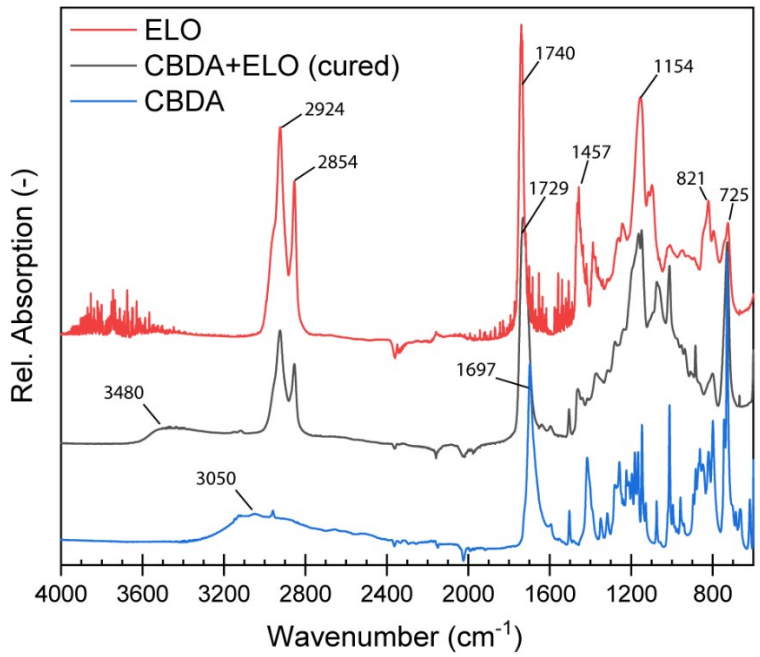

Figure S6. IR-spectra of epoxidized linseed oil (ELO, top), cyclobutene-1,3-diacid (CBDA-2, bottom), and of ELO cured with CBDA-2 (middle).

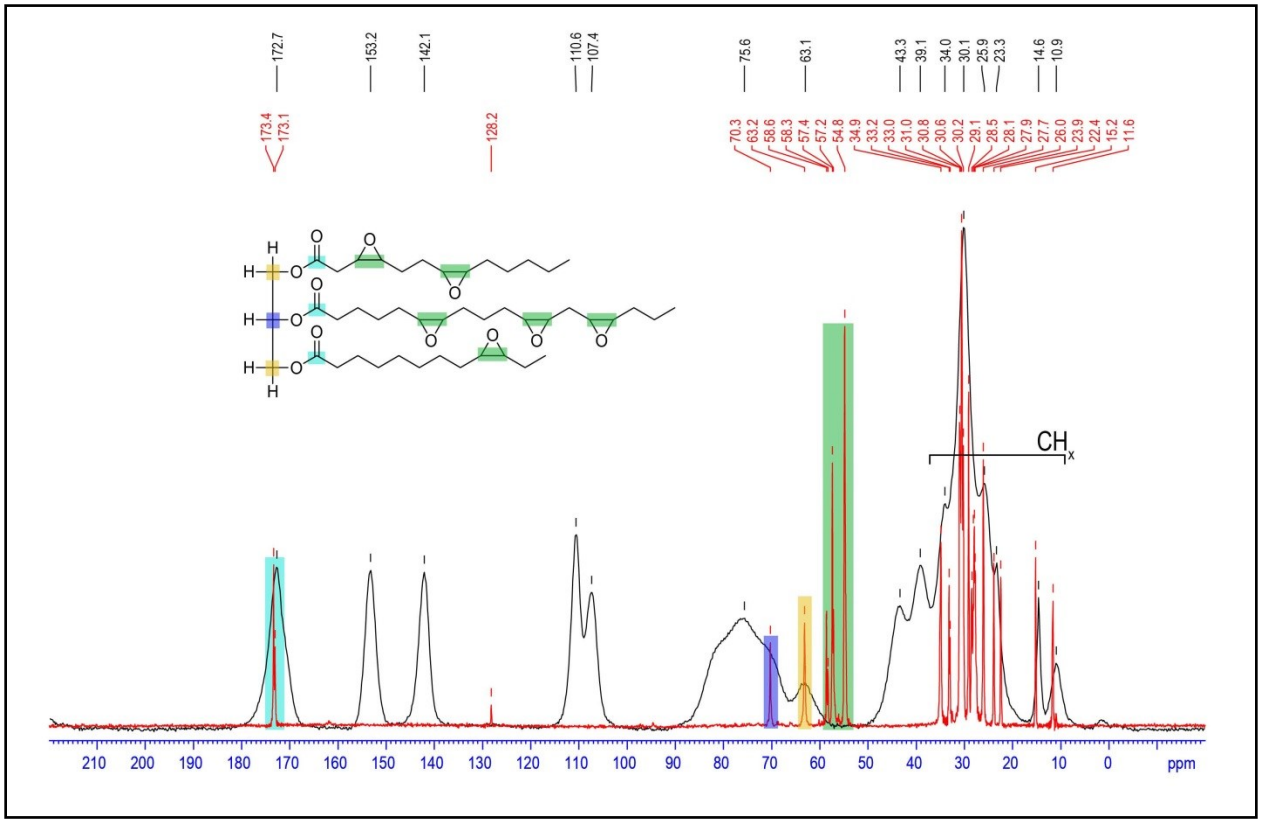

Figure S7. 13C solid-state NMR of ELO (red line) and cured ELO-CBDA-2 (black line).

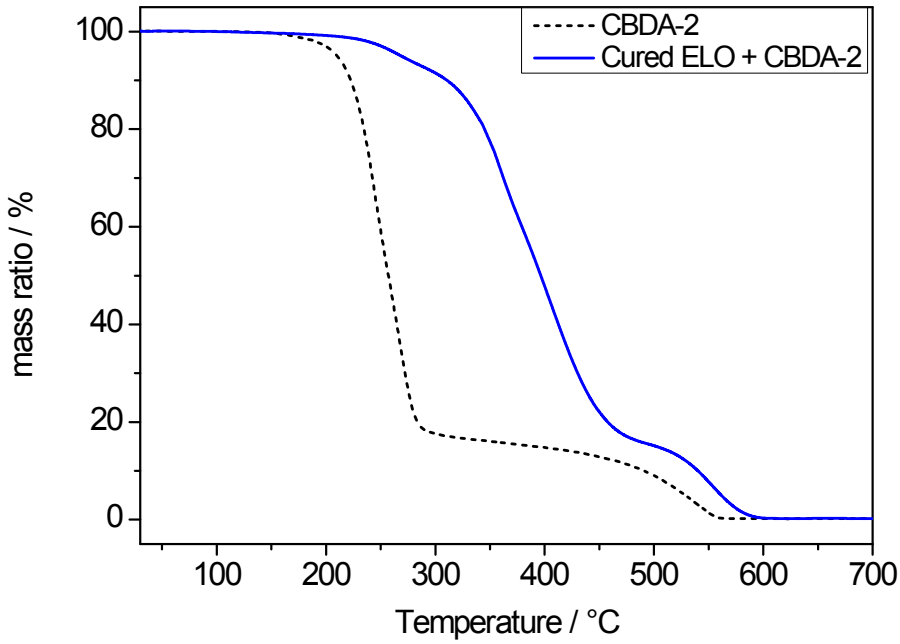

Figure S8. TGA scans of CBDA-2 (dot black line) and cured ELO-CBDA-2 samples (blue solid line) measured at 10 °C/min under air flow.

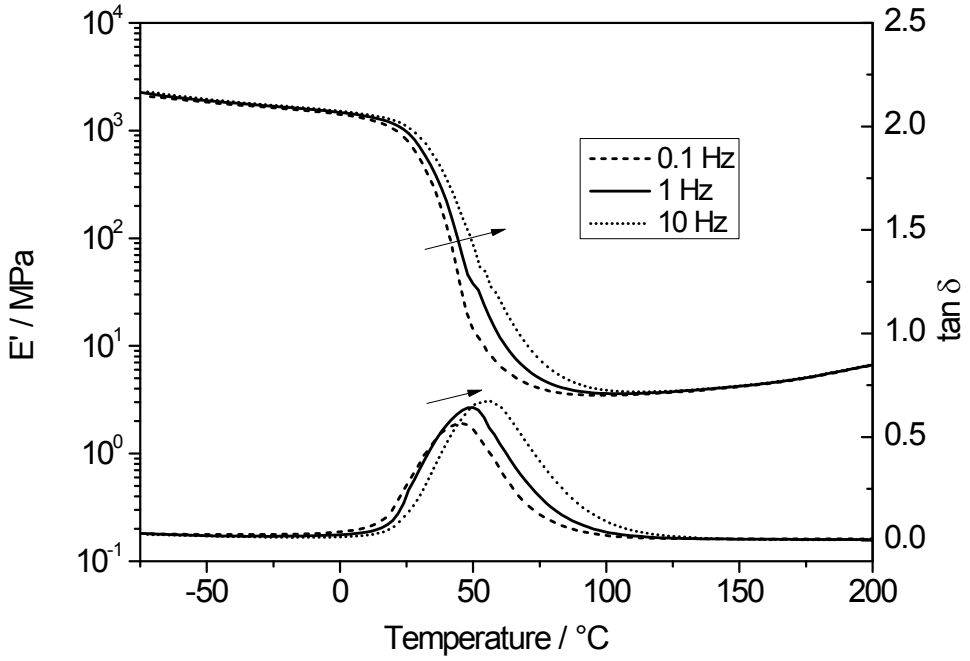

Figure S9. Multi-frequency DMTA scans of cured ELO-CBDA samples measured at 1 °C/min.