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# *Supplementary Material*

## High-Degree Oxidative Desulfurization of a Commercial Marine Fuel Using Deep Eutectic Solvents and Their Recycling Process

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Figure S1. The phase separation after extraction with ChCl/LA (1/2) (Experiment No. 9).

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Figure S2. No phase separation after extraction with ChCl/LA/CA (1/4/1) (Experiment No. 12).

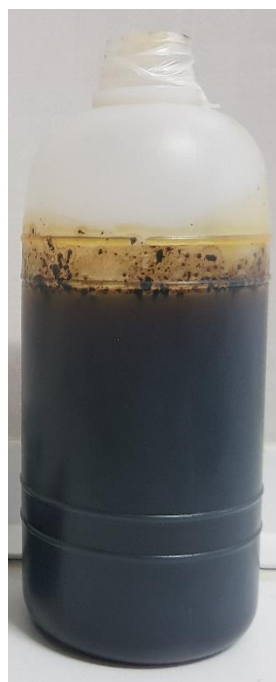


Figure S3. The ChCl/PEG (1/6) recovered from Experiment No. 13.

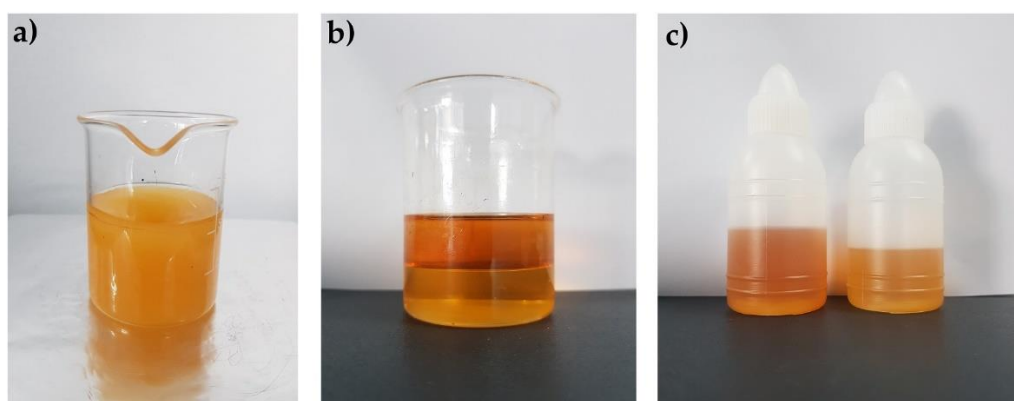


Figure S4. Recycling DES with acetone (Experiment No. 19); a) stirring the mixture of DES with acetone; b) phase separation and c) recovery of the two phases. The recycled DES is in the right bottle.

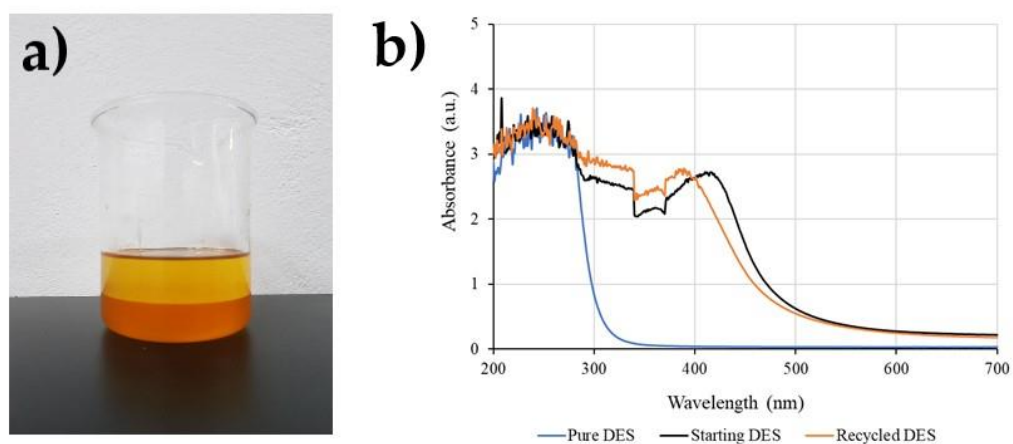


Figure S5. Recycling DES with toluene; a) the phase separation between recycled DES (bottom phase) and the recovered toluene (top phase); b) the UV-Vis spectrum of the recycled DES compared to the spectra of the pure DES and of the starting impure DES.

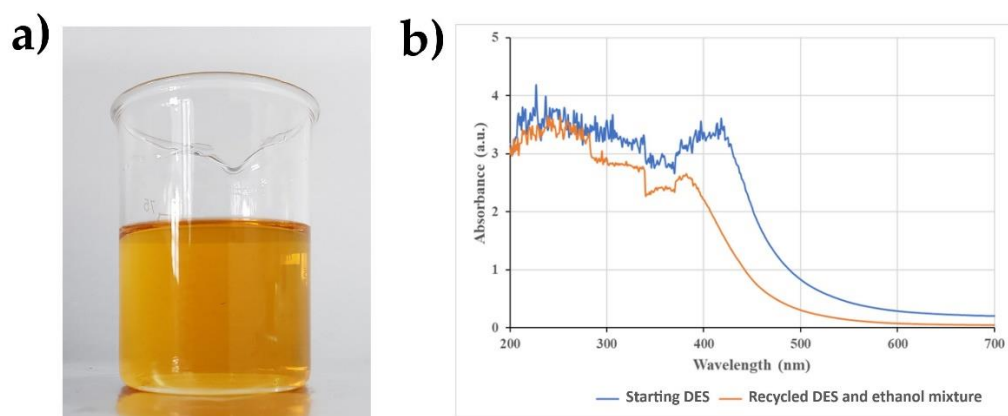


Figure S6. Recycling DES with ethanol; a) the mixture of the impure DES with ethanol and b) the UV-Vis spectrum of the mixture between ethanol and recycled DES compared to the spectrum of the starting impure DES.

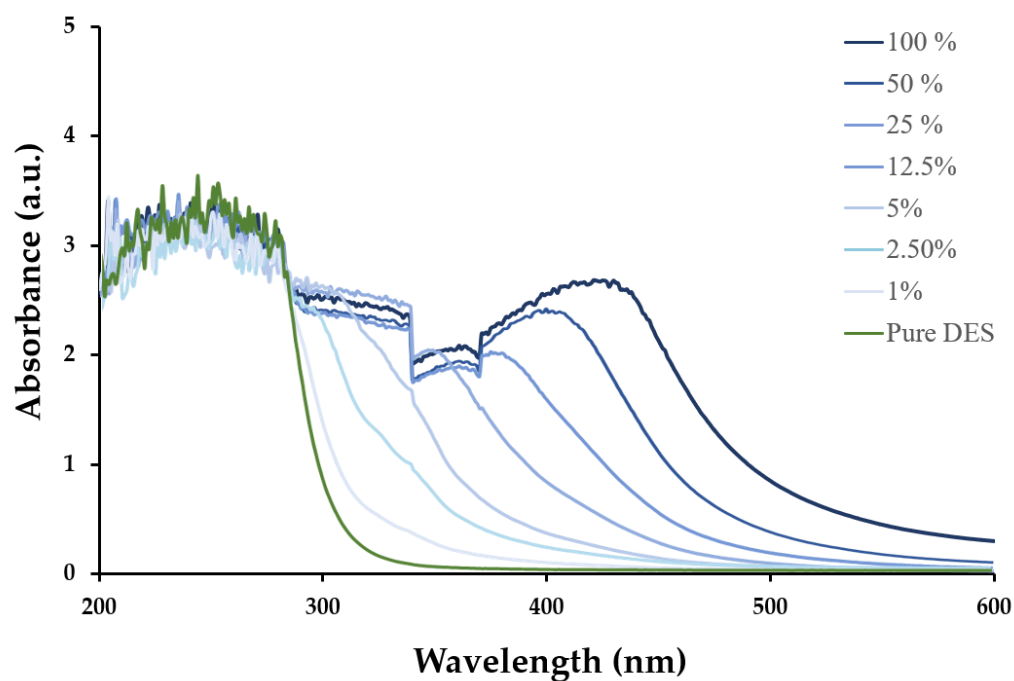


Figure S7. UV-Vis spectra of the solutions of impure, used DES diluted with pure DES at varying concentrations. The solutions represent DES samples with varying impurity levels, where “100%” represents the starting impure DES.

Table S1. Data for the calibration curve used to estimate the level of impurity of recycled DES.

Impurity of DES	Wavelength (nm) at absorbance=1
100 %	490
50 %	455
25 %	427
12.5 %	392
5 %	355
2.5 %	337
1 %	307

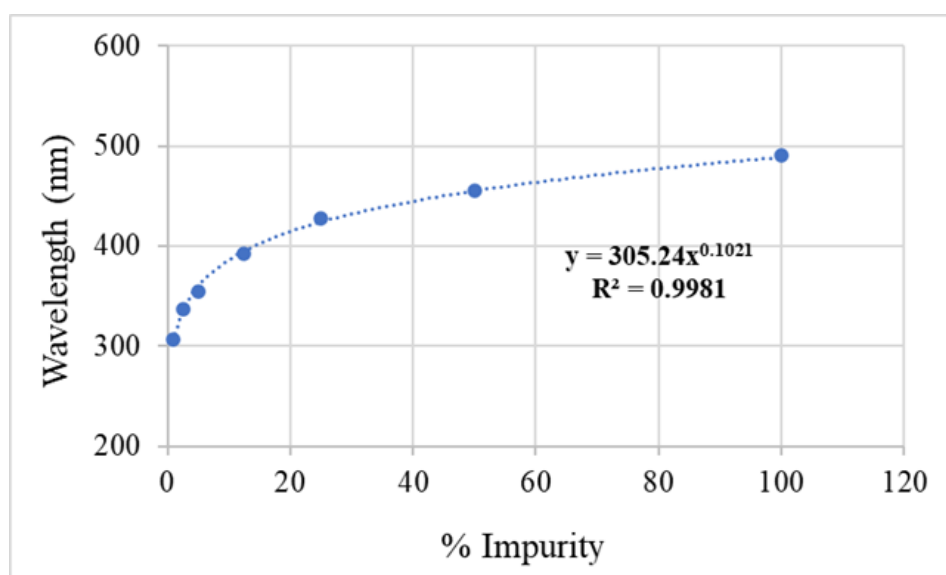


Figure S8. The calibration curve for the correlation between % level of impurity and wavelength at absorbance=1.