

## Desulfurization of diesel fuel with nickel boride in situ generated in ionic liquid

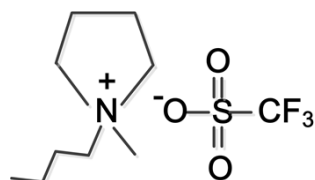
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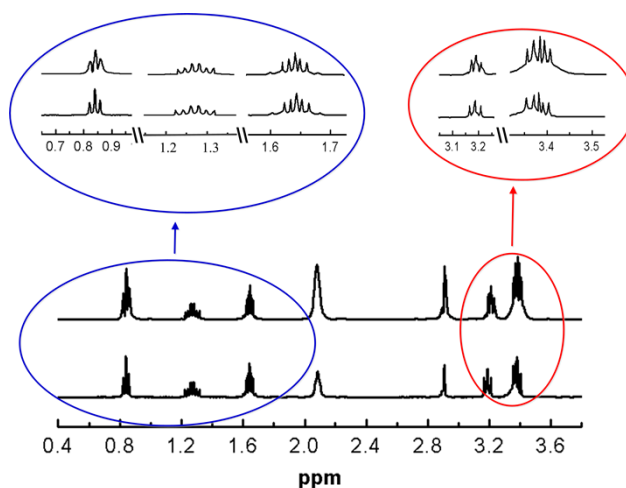
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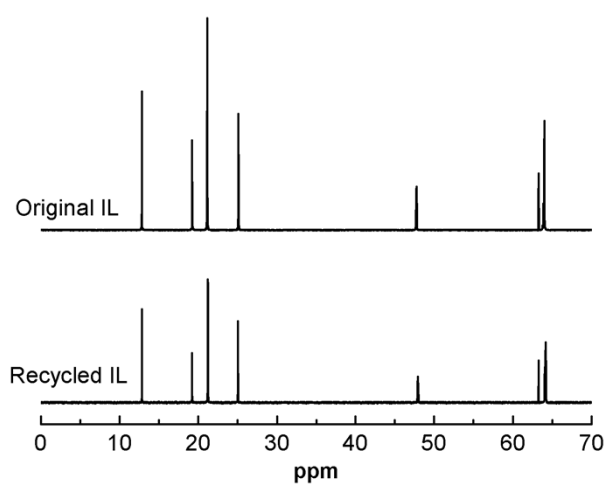
### Supplementary Information



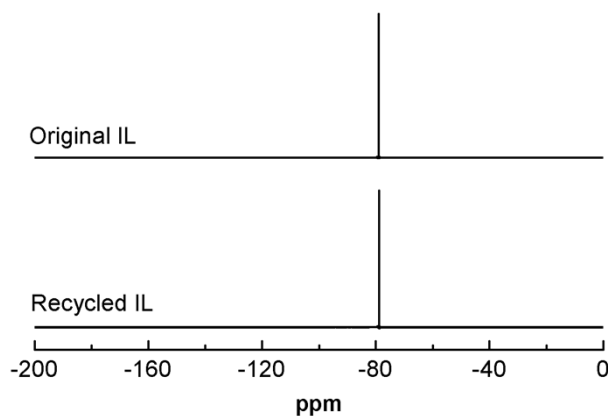
**Scheme S1** Molecular structure of the IL [C<sub>4</sub>mpyr][OTf].



**Fig. S1** <sup>1</sup>H NMR spectra of original and recycled ILs.



**Fig. S2**  $^{13}\text{C}$  NMR spectra of original and recycled ILs.



**Fig. S3**  $^{19}\text{F}$  NMR spectra of original and recycled ILs.

The NMR spectroscopic data are as follows:  $^1\text{H}$ -NMR (400 MHz,  $\text{H}_2\text{O}$ , 298k)  $\delta_{\text{H}}$  (ppm): 3.39-3.32 (4H, m), 3.21-3.17 (2H, m), 2.91 (3H, s), 2.08 (4H, s), 1.63 (2H, m), 1.26 (2H, m), and 0.84 (3H, t);  $^{13}\text{C}$ -NMR (100 MHz,  $\text{H}_2\text{O}$ , 298k)  $\delta_{\text{C}}$  (ppm): 63.98 (s), 63.28 (s), 47.74 (s), 25.12 (s), 21.15 (s), 19.24 (s) and 12.83 (s);  $^{19}\text{F}$ -NMR (376 MHz,  $\text{H}_2\text{O}$ , 298k)  $\delta_{\text{F}}$  (ppm): 79.03 (3F, s).