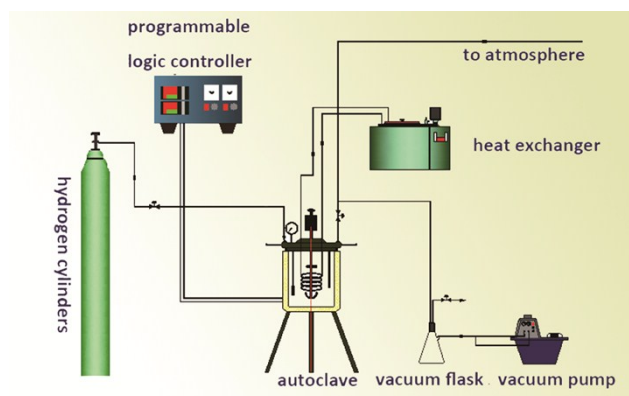


**The conversion of α -pinene to *cis*-pinane using a nickel catalyst
supported on discarded fluid catalytic cracking catalyst with an ionic
liquid layer**

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Scheme S1 Schematic illustration of the set up for the hydrogenation of α -pinene.

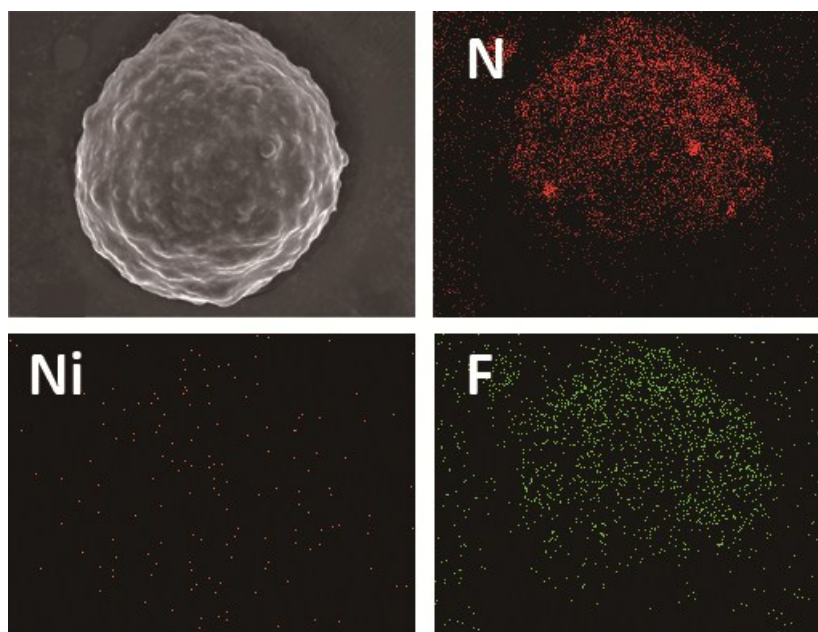


Fig. S1 EDS mapping of the SCILL catalyst for Ni, N, F.

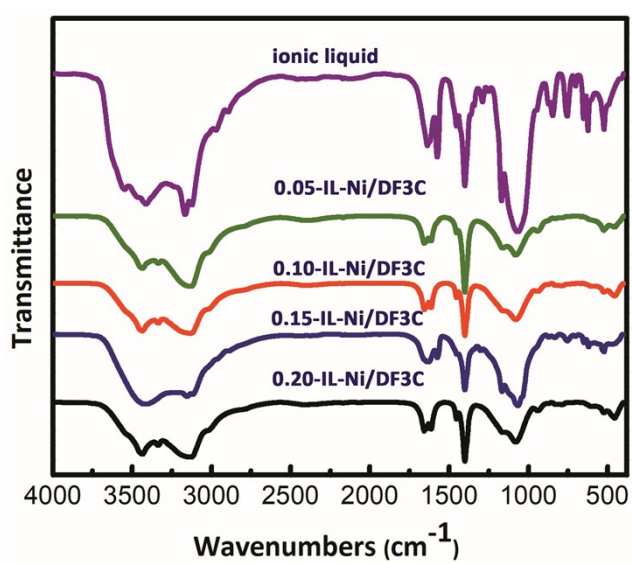
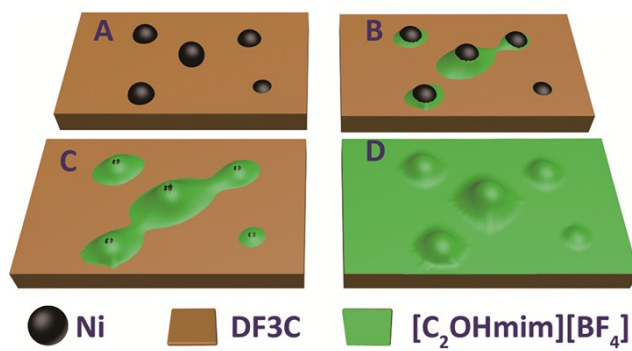


Fig. S2 FTIR spectra of ionic liquid and different ionic liquid loading of the catalyst.



Scheme S2 Ni/DF3C with various of ionic liquid loading.

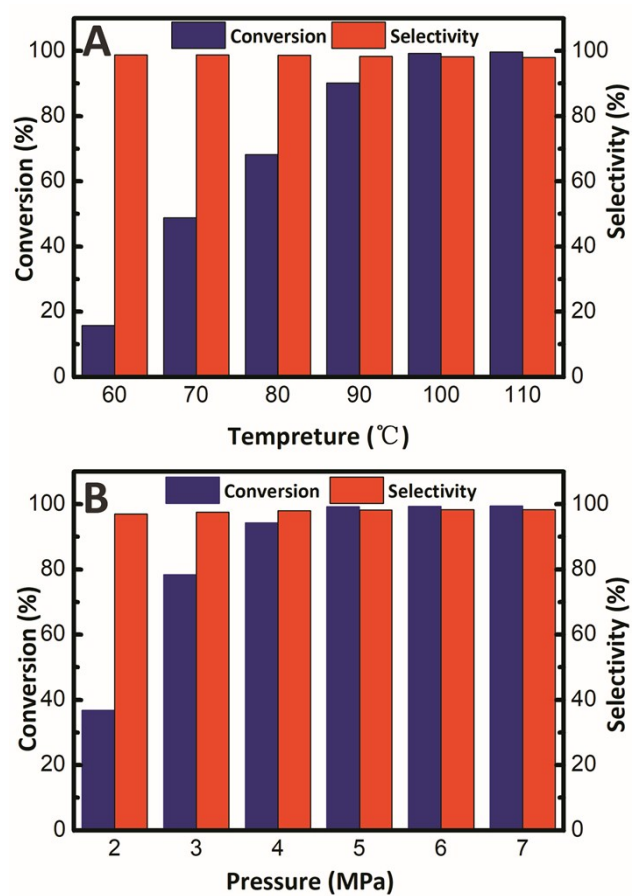


Fig. S3 The effect of temperature (A) and H₂ pressure (B) on the catalytic performance.

Table S1. The effect of different kinds of ionic liquid coating on the catalytic performance.

Catalyst	Ionic liquid	<i>MLs</i>	Conversion (%)	Selectivity (%)
Ni/DF3C	Free	0	99.47	87.94
SCILL	[EMIM][BF ₄]	~1	99.14	88.73
SCILL	[C ₂ OHmim][BF ₄]	~1	99.06	98.26

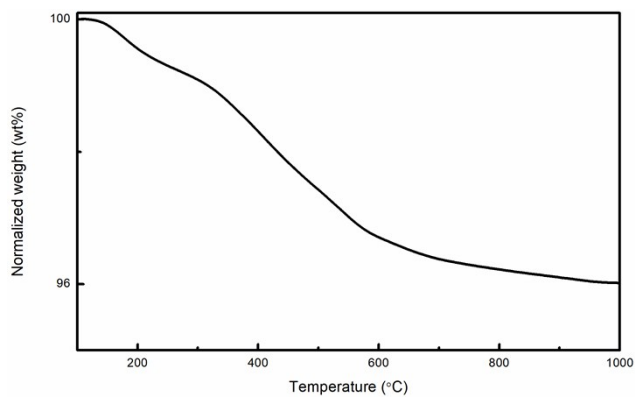


Fig. S4 TGA of the used SCILL catalyst after 20 runs.