Supporting Information

Development of Silica Supported Frustrated Lewis Pairs: Highly Active Transition Metal-Free Catalysts for Z-Selective Reduction of Alkyne

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Figure S1. $^1$H MAS NMR (500 MHz, 8 scans, relaxation delay of 5 s, 10 kHz spinning speed) spectra of 1 (a) and 2 (b).

Figure S2. DRIFT spectrum of 3b.
Figure S3. $^1$H MAS (500 MHz, 8 scans, relaxation delay of 5 s, 10 kHz spinning speed) and $^{13}$C CP/MAS (125.7 MHz, 30000 scans, relaxation delay of 5 s, 10 kHz spinning speed) NMR spectra of 3a.
Figure S4. $^1$H MAS (500 MHz, 8 scans, relaxation delay of 5 s, 10 kHz spinning speed) $^{13}$C CPMAS NMR (125.7 MHz, 30000 scans, relaxation delay of 5 s, 10 kHz spinning speed) spectra of 3b.
Figure S5. $^{19}$F MAS NMR (476.5 MHz, 64 scans, relaxation delay of 5 s, 12 kHz spinning speed) spectra of $3\text{a}$ (left, dotted curves represent deconvoluted peaks) and $3\text{b}$ (right, dashed curves present deconvoluted peaks), spinning side bands (*) were determined by changing the spinning rate (7 kHz, 10 kHz), "®" corresponds to signal from Krytox® vacuum grease (DuPont).

Figure S6. $^{11}$B NMR spectrum (left) and $^{31}$P NMR spectrum (right) of PPh$_3$HB(C$_6$F$_5$)$_2$ in C$_6$D$_6$. 
Figure S7. MAS-D-HMQC experiment of 3b to a pair of nuclei ($^{11}$B, $^{31}$P).

Scheme S1. Restructuration of [HB(C$_6$F$_5$)$_2$][PPh$_3$] in solution after hydrogen addition.
Figure S8. Kinetic study of the conversion of 3-hexyne at 10 bar hydrogen, 80 °C and 2 mol% of 3a in pentane.

Figure S9. GC chromatogram of the hydrogenation of a) 1,2-diphenylethyne.
Figure S10. GC chromatogram of the hydrogenation of b) (hex-2-yn-1-yloxy)trimethylsilane.
Figure S11. GC chromatogram of the hydrogenation of c) alkyne derived from oleic methyl ester: methyl octadec-9-ynoate.