A Non-Aqueous Route toward a Nanostructured Hybrid Titanate

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Figure SI-1. Infrared spectra of samples obtained with or without addition of different long chain trialkylamines added to the Me$_3$N-BH$_3$ precursor.

Figure SI-2. XRD patterns before and after ethanol washing. Filled circles: tetramethylammonium chloride TMACl; empty squares: lamellar titanate.
Figure SI-3. Representation of the lepidocrocite structure $\gamma$-FeOOH.

Figure SI-4. Raman spectra of (a) pure anatase obtained with $^t$BuH$_2$N-BH$_3$ and (b) an anatase-titanate composite obtained with Me$_3$N-BH$_3$. The absence of a band at 850-950 cm$^{-1}$ for the titanate containing sample indicates that the Ti-O layers do not contain steps and are not corrugated, then suggesting a pseudo-lepidocrocite type structure.
**Figure SI-5.** TEM and HRTEM images of anatase nanoparticles within the sample obtained with solely Me₃N-BH₃.

**Figure SI-6.** N₂ sorption isotherm of the titanate sample obtained with Me₃N-BH₃ and NPr₃.
Figure SI-7. UV spectra of 4-chlorophenol solutions upon irradiation by a Xe lamp (irradiation wavelength > 300 nm) in the presence of (a) a titanate/anatase mixture obtained with Me$_3$N-BH$_3$, (b) a pure titanate obtained with Me$_3$N-BH$_3$ and NPr$_3$ and (c) commercial Degussa P25. Note that 4-CP does not absorb light at wavelength > 300 nm, thus avoiding direct degradation upon irradiation.