Formylation of Amines with CO₂ Using a Polymeric Frustrated Lewis Pair

**Significance:** A polymeric carbon dioxide bridged frustrated Lewis pair (A) was prepared by treatment of an electron-deficient triarylborane immobilized on polystyrene with a sterically demanding triarylphosphine immobilized on polystyrene in the presence of CO₂ (eq. 1). The polymeric frustrated Lewis pair A catalyzed the formylation of amines with carbon dioxide in the presence of phenylsilane at room temperature to give the corresponding formamides in up to 99% yield (eq. 2). The turnover number for the formylation reached as high as 14800.

**Comment:** The polymeric frustrated Lewis pair A was characterized by ¹¹B, ¹⁹F, and ³¹P NMR, DLS, TEM, FT-IR, UV-Vis, and conductivity measurements. In the formylation of diethylamine, morpholine, aniline, benzophenone imine, or imidazole, the catalyst was reused seven times with slight loss of the catalytic activity.

**Key words**
- frustrated Lewis pair
- boranes
- phosphines
- formylation
- amines
- carbon dioxide