

## Supporting Information

### Effects of silylene ligands on catalytic activity of [PSiP] pincer cobalt(II) chloride for N<sub>2</sub> silylation

Min Zhang, Yanhong Dong, Qingshuang Li, Xiaoyan Li, Hongjian Sun\*

*School of Chemistry and Chemical Engineering, Key Laboratory of Special Functional Aggregated Materials, Ministry of Education, Shandong University, Shanda Nanlu 27, 250100 Jinan, People's Republic of China*

#### Correspondence

E-mail address: [hjsun@sdu.edu.cn](mailto:hjsun@sdu.edu.cn)

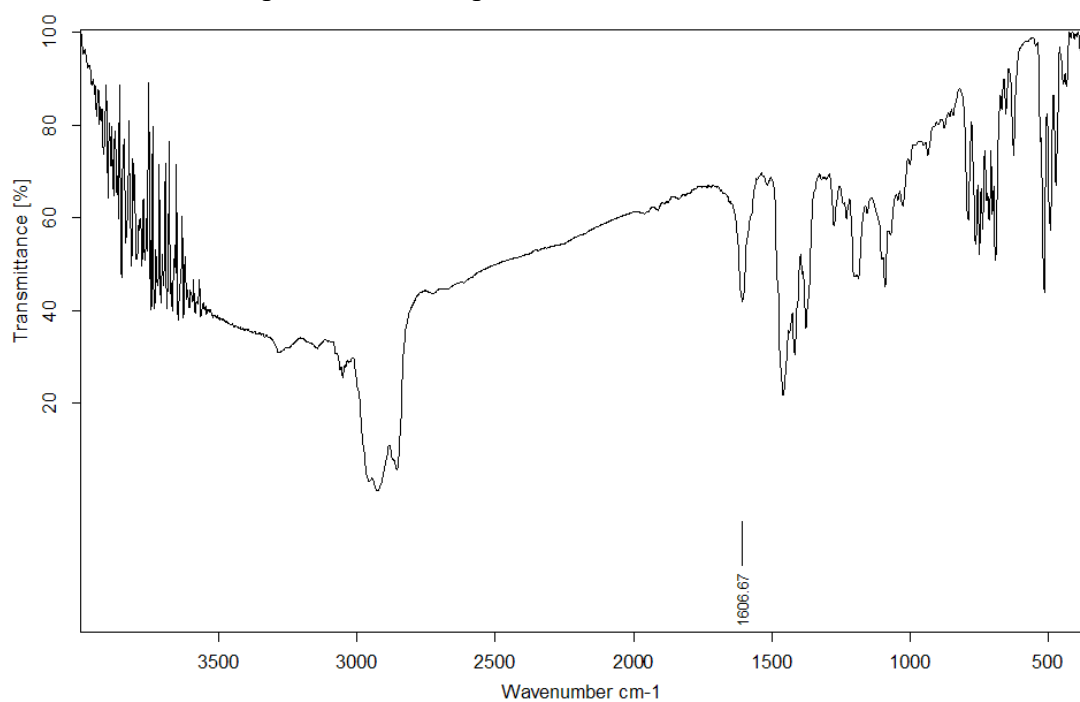
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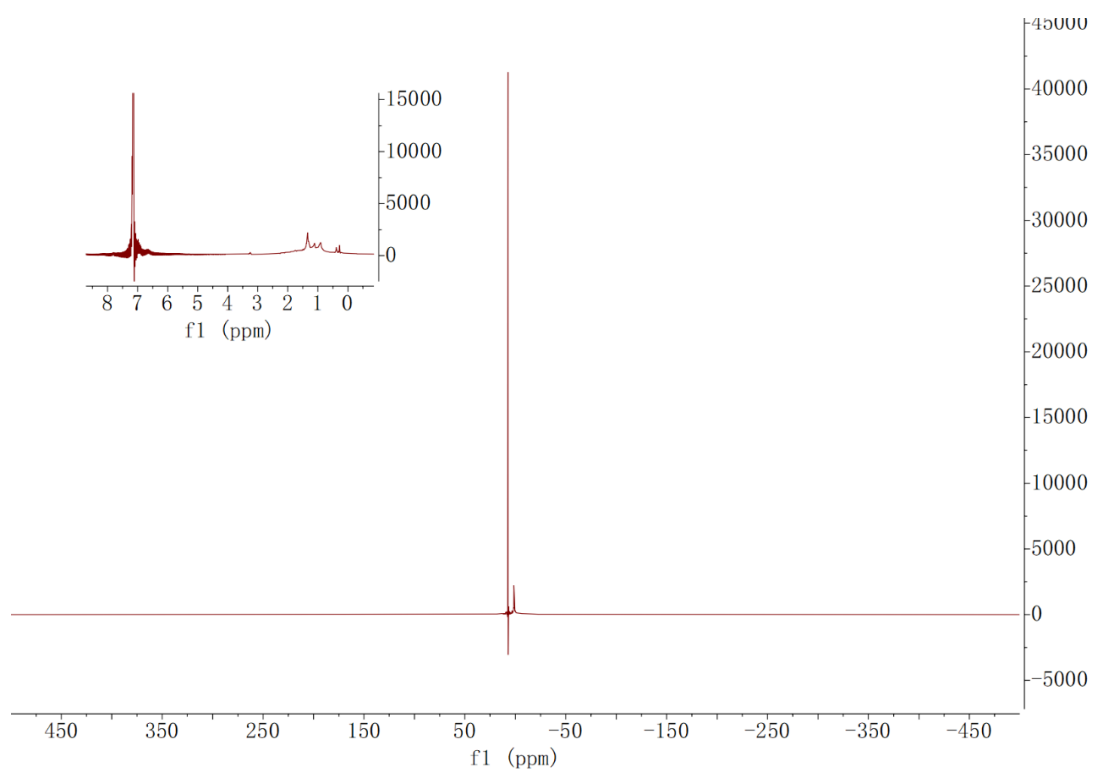
### 1. Table S1 Crystallographic Data for complex 3

Empirical formula	C <sub>52</sub> H <sub>54</sub> Cl <sub>2</sub> CoN <sub>2</sub> P <sub>2</sub> Si <sub>2</sub>
Formula weight	954.92
Temperature/K	173.00(10)
Crystal system	monoclinic
Space group	Cc
a/Å	15.8498(2)
b/Å	16.2943(2)
c/Å	18.5455(2)
α/°	90
β/°	98.3770(10)
γ/°	90
Volume/Å <sup>3</sup>	4738.49(10)
Z	4
ρ <sub>calc</sub> /cm <sup>3</sup>	1.339
μ/mm <sup>-1</sup>	5.287
F(000)	1996.0
Crystal size/mm <sup>3</sup>	0.1 × 0.07 × 0.05
Radiation	Cu Kα (λ = 1.54184)
2θ range for data collection/°	7.824 to 153.452
Index ranges	-19 ≤ h ≤ 19, -20 ≤ k ≤ 20, -23 ≤ l ≤ 22
Reflections collected	30338
Independent reflections	8452 [R <sub>int</sub> = 0.0403, R <sub>sigma</sub> = 0.0380]
Data/restraints/parameters	8452/2/557
Goodness-of-fit on F <sup>2</sup>	1.023
Final R indexes [I ≥ 2σ (I)]	R <sub>1</sub> = 0.0273, wR <sub>2</sub> = 0.0635
Final R indexes [all data]	R <sub>1</sub> = 0.0294, wR <sub>2</sub> = 0.0642
Largest diff. peak/hole / e Å <sup>-3</sup>	0.23/-0.33
Flack parameter	-0.027(2)

## 2. IR and $^1\text{H}$ NMR spectrum of Complex 3

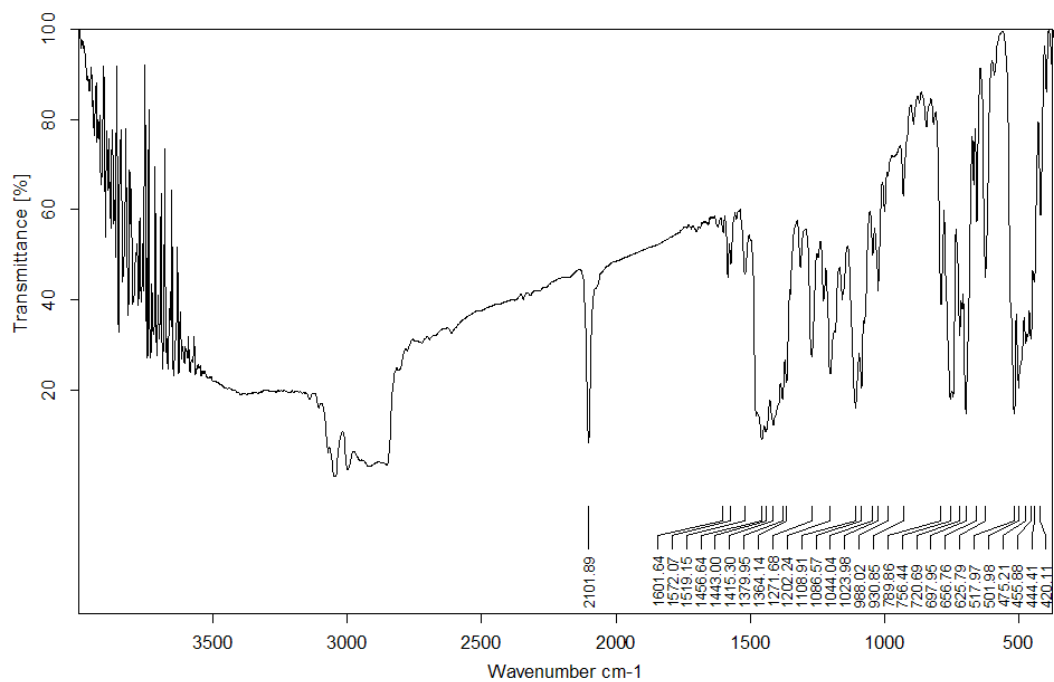


**Figure S1.** The IR spectrum of cobalt complex 3



**Figure S2.** The  $^1\text{H}$  NMR spectrum of complex 3

### 3. Mechanistic Study



**Figure S3.** *In situ* IR Spectrum of Stoichiometric Reaction of **3** with  $KC_8$  after 6 h.