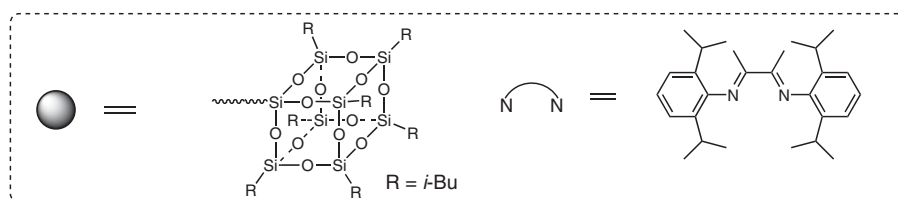
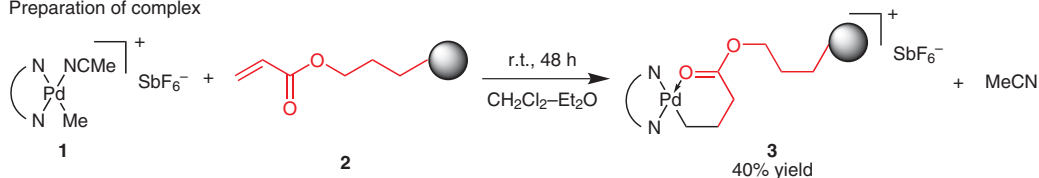


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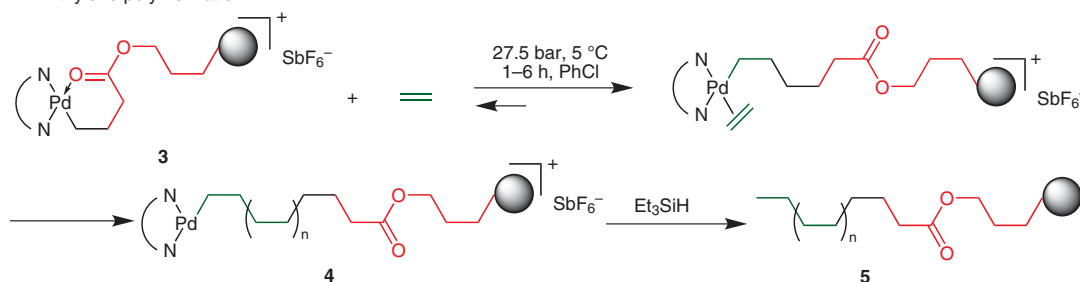
Homogeneous Polyhedral Oligomeric Silsesquioxane (POSS)-Supported Pd–Diimine Complex and Synthesis of Polyethylenes End-Tethered with a POSS Nanoparticle *via* Ethylene “Living” Polymerization*Chem. Commun.* **2008**, 1178–1180.

## Preparation of Polyethylenes End-Tethered with POSS

Preparation of complex



Ethylene polymerization

Monitoring results of **5**

Time (h)	Mn <sub>GPC</sub> (kg/mol)	PDI <sub>GPC</sub>	Mn <sub>NMR</sub> (kg/mol)	Branches (per 1000C)	Time (h)	Mn <sub>GPC</sub> (kg/mol)	PDI <sub>GPC</sub>	Mn <sub>NMR</sub> (kg/mol)	Branches (per 1000C)
1	15.2	1.11	11.2	89	4	43.5	1.12	36.3	87
2	24.4	1.17	19.1	88	5	52.4	1.19	45.9	88
3	36.6	1.14	29.6	88	6	56.4	1.17	51.6	87

**Significance:** Preparation of a homogeneous polyhedral silsesquioxane (POSS)-supported Pd–diimine complex **3** and telechelic polyethylenes end-tethered with POSS nanoparticles **5** was reported. Thus, complex **3** was prepared by the reaction of a Pd–diimine catalyst **1** with acryloisobutyl-POSS **2** at room temperature for 48 h (40% yield). Ethylene polymerization was carried out with **3** at 5 °C under 27.5 bar in chlorobenzene followed by quenching **4** with triethylsilane to afford compound **5**.

**Comment:** Monitoring results of **5** led to the following conclusions: The number average molecular weight (Mn) was increased in proportion to time (1 h; 15.2 kg/mol vs 6 h; 56.4 kg/mol). The polydispersity index (PDI) value was within 1.11–1.19. <sup>1</sup>H NMR measurements exhibited that these polymers were branched with ca. 88 branches per 1000 carbons.

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