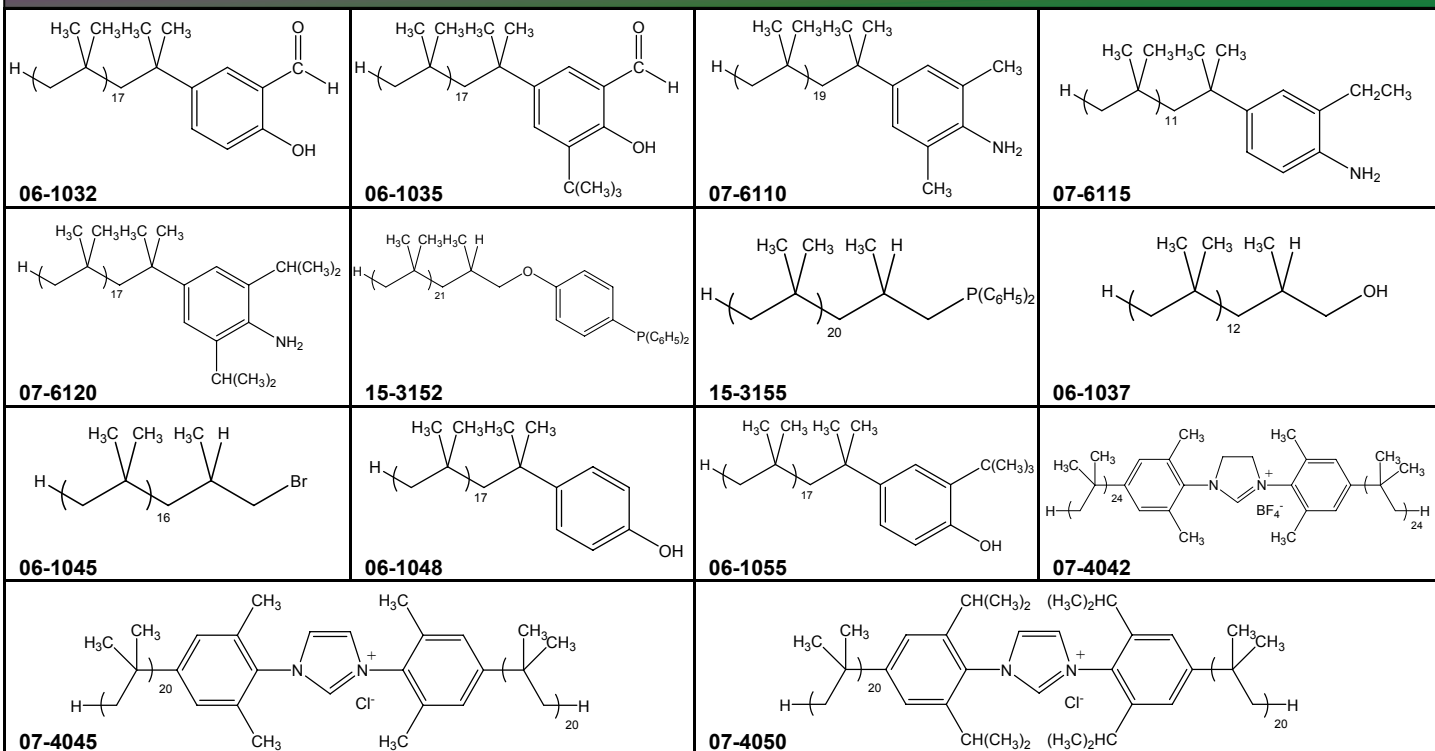


# STREM Polyisobutyl (PIB) Ligands for Separable Homogeneous Catalysts

metals · inorganics · organometallics · catalysts · ligands · custom synthesis · cGMP facilities · nanomaterials



Phase-selectively soluble polyisobutyl-bound ligands developed by Professor David Bergbreiter's group can be used to prepare versions of homogeneous transitional metal complexes and organocatalysts that can be recovered and recycled. The heptane solubility of the terminally vinyl-functionalized PIB-bound species is used to separate the catalyst, reagents, and/or byproducts from the polar phase-soluble product. Such separations can involve thermomorphic systems, latent biphasic systems or simple room temperature extractions.

The efficiency of the separation is usually high, but can be affected by the nature of the solvents used and the size or polarity of the catalyst or reagent bound to the PIB oligomer's terminus. Centrifugation can be used to facilitate the separation process, specifically to avoid the emulsions that can form in aqueous workups with some functionalized PIB oligomers.

The performance of these PIB-bound ligands has been effectively demonstrated by Bergbreiter's group in the ring-opening of epoxides, olefin metathesis, palladium cross-coupling, addition, allylic amination, polycarbonate polymerization and other reactions. Notably, incorporation of the ligands only affects the solubility, and not the reactivity of the supported catalysts.

<b>06-1032</b>	<b>5-[Polyisobutyl(18)]-2-hydroxybenzaldehyde (50% in heptane/polyisobutylene)</b> FW: 1132; yellow liq.	1g 5g
<b>06-1035</b>	<b>5-[Polyisobutyl(18)]-2-hydroxy-3-(t-butyl)benzaldehyde (50% in heptane/polyisobutylene)</b> FW: 1188.00; yellow liq.	1g 5g
<b>07-6110</b>	<b>4-[Polyisobutyl(20)]-2,6-dimethylaniline (50% in heptane/polyisobutylene)</b> FW: 1243; pale yellow liq.	1g 5g
<b>07-6115</b>	<b>4-[Polyisobutyl(12)]-2-ethylaniline (50% in heptane/polyisobutylene)</b> FW: 794; red-orange liq.	1g 5g
<b>07-6120</b>	<b>4-[Polyisobutyl(18)]-2,6-(di-i-propyl)aniline (50% in heptane/polyisobutylene)</b> FW: 1187; yellow-orange liq.	1g 5g
<b>15-3152</b>	<b>4-Diphenylphosphinophenyl[2-methyl-3-[polyisobutyl(21)]propyl]ether (50% in heptane/polyisobutylene)</b> FW: 1513; colorless liq.	1g 5g
<b>15-3155</b>	<b>{2-Methyl-3-[polyisobutyl(20)]propyl}diphenylphosphine (50% in heptane/polyisobutylene)</b> FW: 1364; colorless liq.	1g 5g
<b>06-1037</b>	<b>2-Methyl-3-[polyisobutyl(12)]propanol (50% in heptane/polyisobutylene)</b> FW: 747; colorless liq.	1g 5g
<b>06-1045</b>	<b>2-Methyl-3-[polyisobutyl(12)]propyl bromide (50% in heptane/polyisobutylene)</b> FW: 1035; pale yellow liq.	1g 5g
<b>06-1048</b>	<b>4-[Polyisobutyl(18)]phenol (50% in heptane/polyisobutylene)</b> FW: 1104; pale yellow liq.	1g 5g

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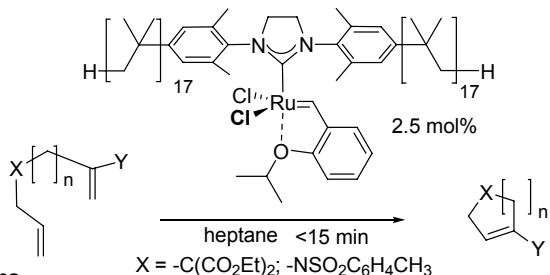
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06-1055	4-[Polyisobutyl(18)]-2-(t-butyl)phenol (50% in heptane/polyisobutylene) FW: 1160; yellow liq.	1g 5g
07-4042	1,3-Bis{2,3-dimethyl-4-[polyisobutyl(24)]phenyl}-4,5-dihydroimidazolium tetrafluoroborate (50% in hexane/polyisobutylene) FW: 3059; yellow liq.	500mg
07-4045	1,3-Bis{2,3-dimethyl-4-[polyisobutyl(20)]phenyl}imidazolium chloride (50% in hexane/polyisobutylene) FW: 2557; orange liq.	500mg
07-4050	1,3-Bis{2,6-di-i-propyl-4-[polyisobutyl(20)]phenyl}imidazolium chloride (50% in hexane/polyisobutylene) FW: 2669; orange liq.	500mg

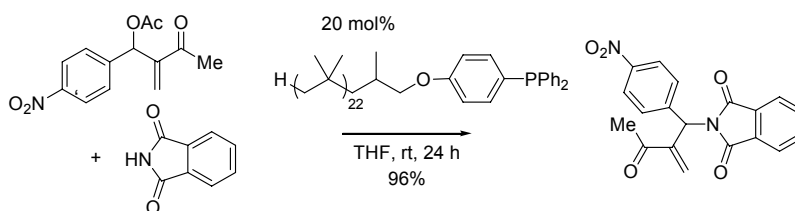
Technical Notes:

### Ring Closing Metathesis



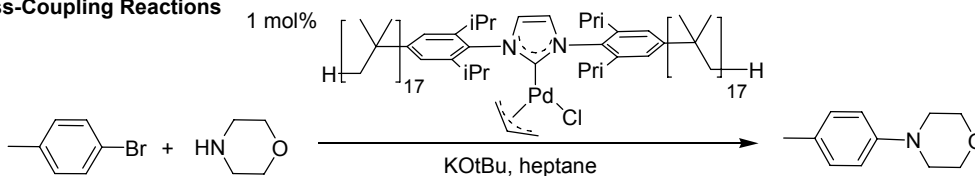
Ref. (1)

### Addition and Allylic Amination Reactions



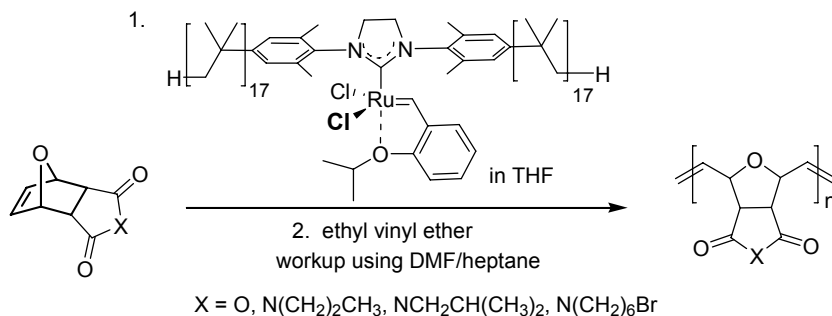
Ref. (2)

### Palladium Cross-Coupling Reactions



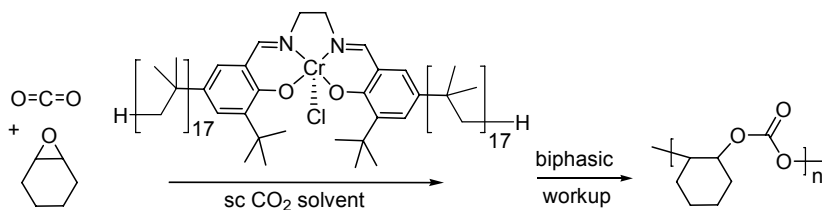
Ref. (3)

### Ring Opening Metathesis Polymerization (ROMP)



Ref. (4)

### Polycarbonate polymerization



Ref. (5)

References:

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2. *J. Org. Chem.*, **2011**, 76, 6912.
3. *J. Organomet. Chem.*, **2011**, 696, 1272.
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