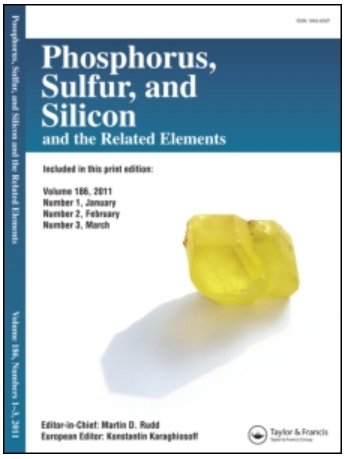

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PHOSPHINOPHENOLATO COMPLEXES FOR USE IN ETHENE POLY/OLIGOMERIZATION

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2-Phosphinophenolato-*P*,*O*)-Ni(η^5-Cp) **1**, bis(2-phosphinophenolato-*P,O*)Ni **2**,[1] (2-phosphinophenolato-*P,O*)Ni(η^3-methallyl) **3**, hemilabile (2-phosphinophenol-*P,O*)Ni(η^3-methallyl)SbF_6 **4**,[2] and (2-phosphinophenolato-*P,O*)methylnickel(PMe_3) **5**[3] were synthesized from 2-phosphinophenols and $NiCp_2$, methallylNiBr or $[NiMe(OMe)(PMe_3)]_2$, respectively. The thermally more labile complexes **3–5** catalyze the C—C coupling of ethene whilst **1** and **2** remain inactive under equal conditions. **3** provides linear polymers, **4** affords isomer mixtures of branched oligomers while **5** produces linear oligomers if sufficiently activated by *P*-alkyl groups. Formation of complexes of type **2** is regarded to terminate the catalytic process.[1–3] In case of 2-diphenylphosphino derivatives **2** can be reactivated using excess NiX_2 and NaH, but the reaction rate is much slower than with **3**. Probably the generation of the active catalyst at the surface of the least soluble component is the rate-limiting step.[2]

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