Direct Cross-Coupling of Diaryl Zinc Reagents

**Significance:** Ingelson and co-workers developed an operationally simple method for the direct C(sp²)–C(sp³) cross-coupling of diarylzinc reagents with benzylic, primary, secondary, and tertiary alkyl halides, leading to the alkylated products in good yields.

**Comment:** The reactivity of this cross-coupling reaction was highly solvent dependent and showed excellent functional group tolerance. The products were generally obtained in good yields, and purification by column chromatography was not required.

\[
\begin{align*}
\text{Zn} & \quad \text{R}_1 \quad \text{R}_1^\cdot \\
\text{C}_6\text{D}_6 & \quad \text{r.t. to 80 °C} \\
1 \text{ min to 20 h} & \quad \text{R}_2 \quad \text{R}_4^\cdot \\
(1.0 \text{ equiv}) & \quad \text{R}_3^\cdot \\
\text{up to 99% yield} &
\end{align*}
\]

**Selected examples:**
- 99% yield (X = Br)
- 89% yield (X = Br)
- 91% yield (X = Br)
- 86% yield (X = Br)
- 87% yield (X = Br)
- 80% yield (X = Br)