

## NMR spectroscopic identification of Ni(II) species formed upon activation of ( $\alpha$ -diimine)NiBr<sub>2</sub> polymerization catalysts with MAO and MMAO

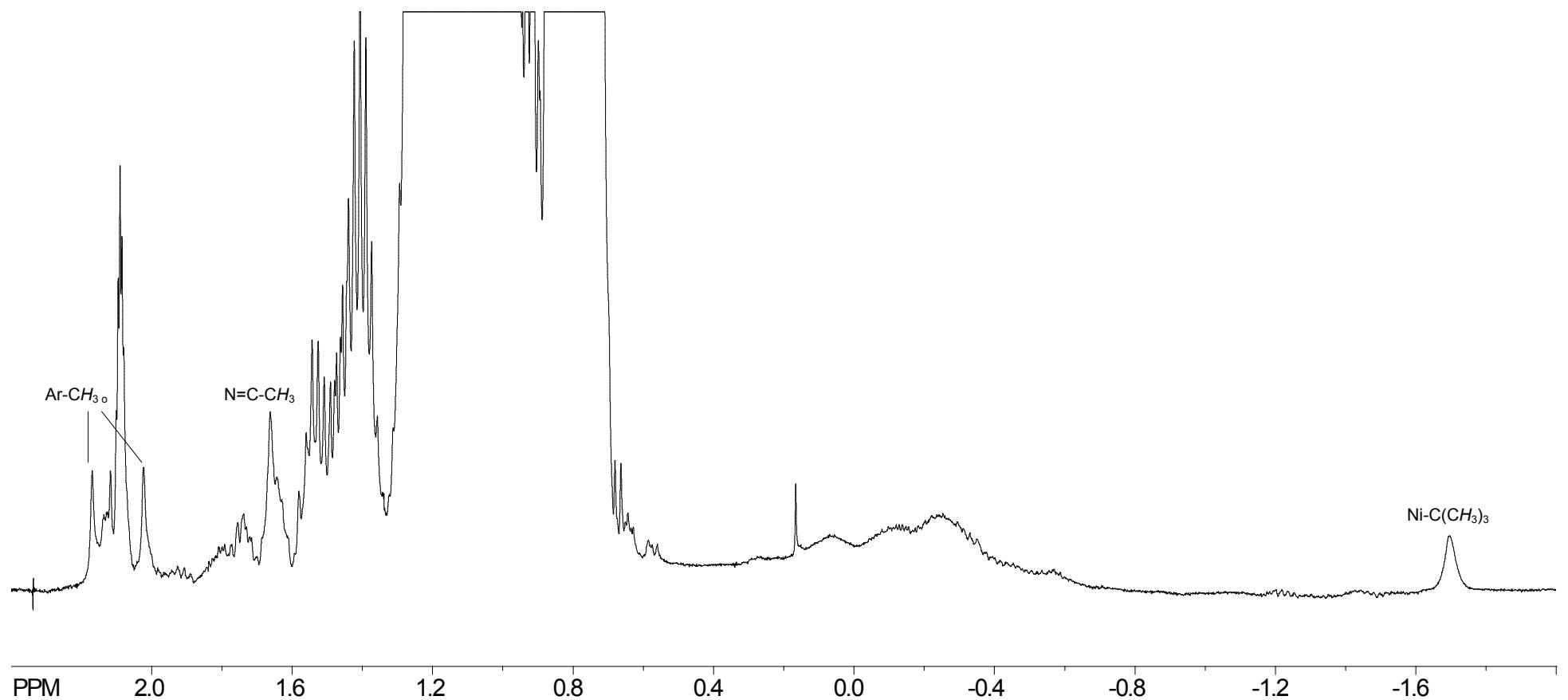
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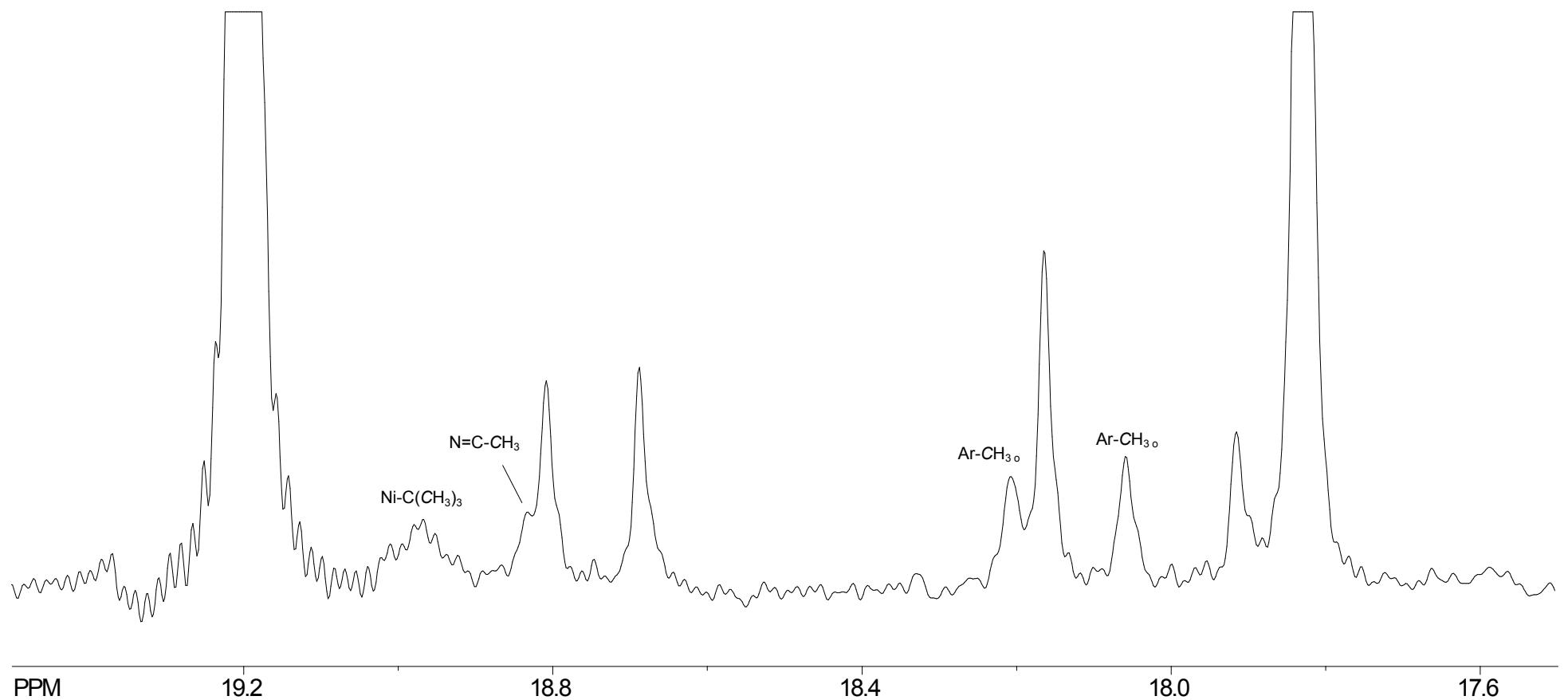
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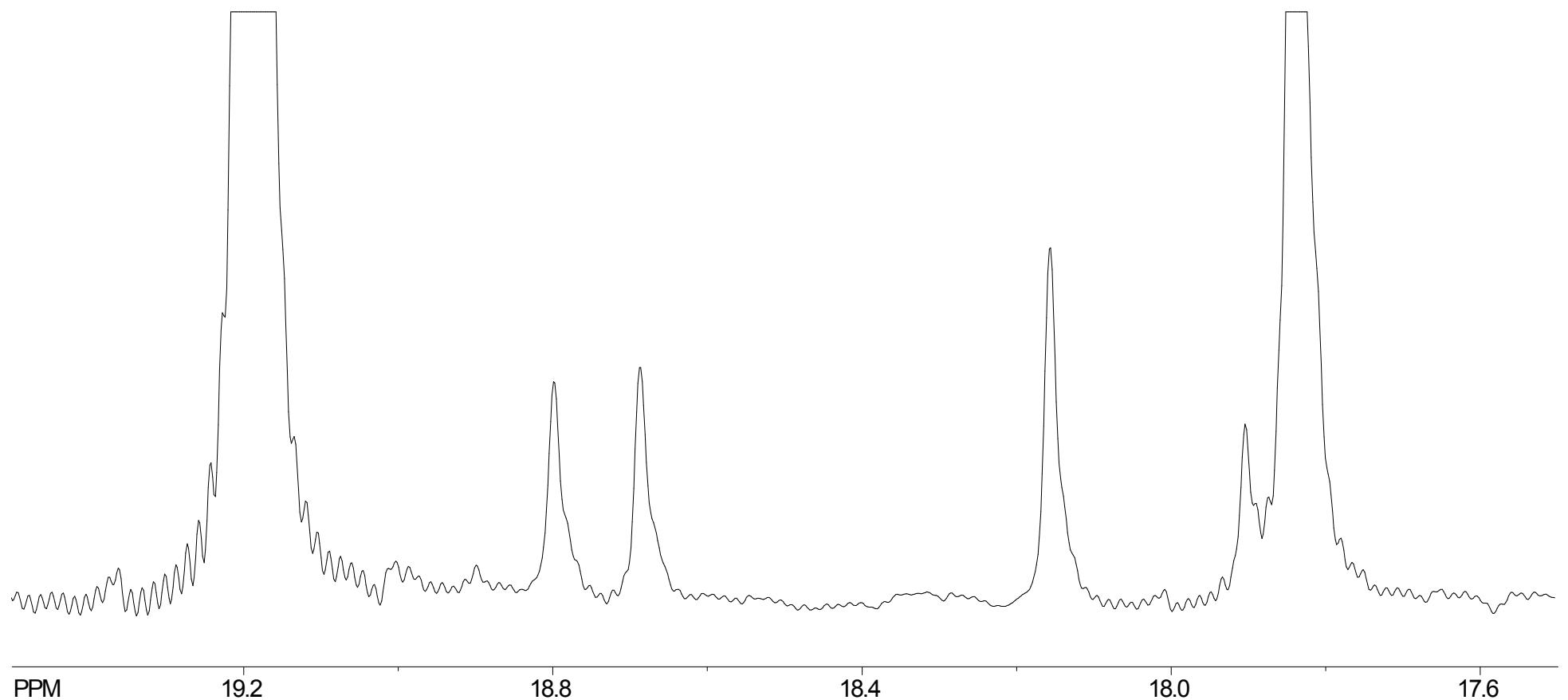
### Electronic supporting information



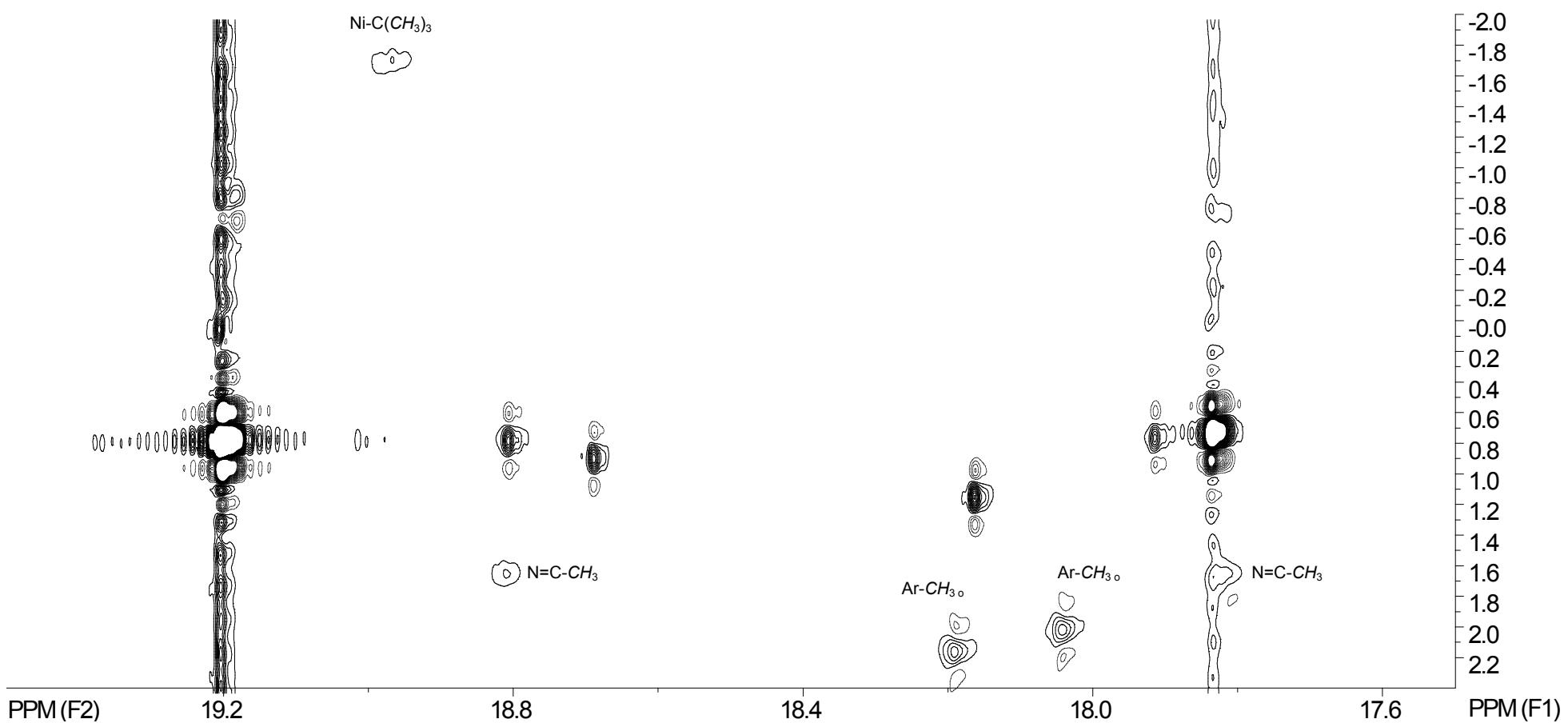
**Figure S1.**  ${}^1\text{H}$  NMR spectrum of the sample **1**/MMAO (toluene-d<sub>8</sub>/1,2-difluorobenzene (2:1),  $[\text{Al}]/[\text{Ni}] = 20:1$ ,  $[\text{Ni}] = 0.01 \text{ M}$ ) recorded at  $-40^\circ\text{C}$ .



**Figure S2.** Dept45  $\text{^{13}C}$  NMR spectrum of the sample **1**/MMAO (toluene-d<sub>8</sub>/1,2-difluorobenzene (2:1), [Al]/[Ni] = 20:1, [Ni] = 0.01 M) recorded at  $-40\text{ }^{\circ}\text{C}$ .



**Figure S3.**  $\text{Dept}^{45}$   $^{13}\text{C}$  NMR spectrum of the system **1**/MMAO (toluene-d<sub>8</sub>/1,2-difluorobenzene (2:1), [Al]/[Ni] = 20:1, [Ni] = 0.01 M) recorded at -40 °C upon storing at room temperature for 1 h (resonances of **3'** disappeared).



**Figure S4.**  $^1\text{H}, ^{13}\text{C}$  hxdeptbif NMR spectrum of the sample **1**/MMAO (toluene-d<sub>8</sub>/1,2-difluorobenzene (2:1), [Al]/[Ni] = 20:1, [Ni] = 0.01 M) recorded at -40 °C.