

Electronic Supplementary Information for:

## **Synthesis and Reactivity of Cyclic (Alkyl)(Amino)Carbene stabilized Nickel Carbonyl Complexes**

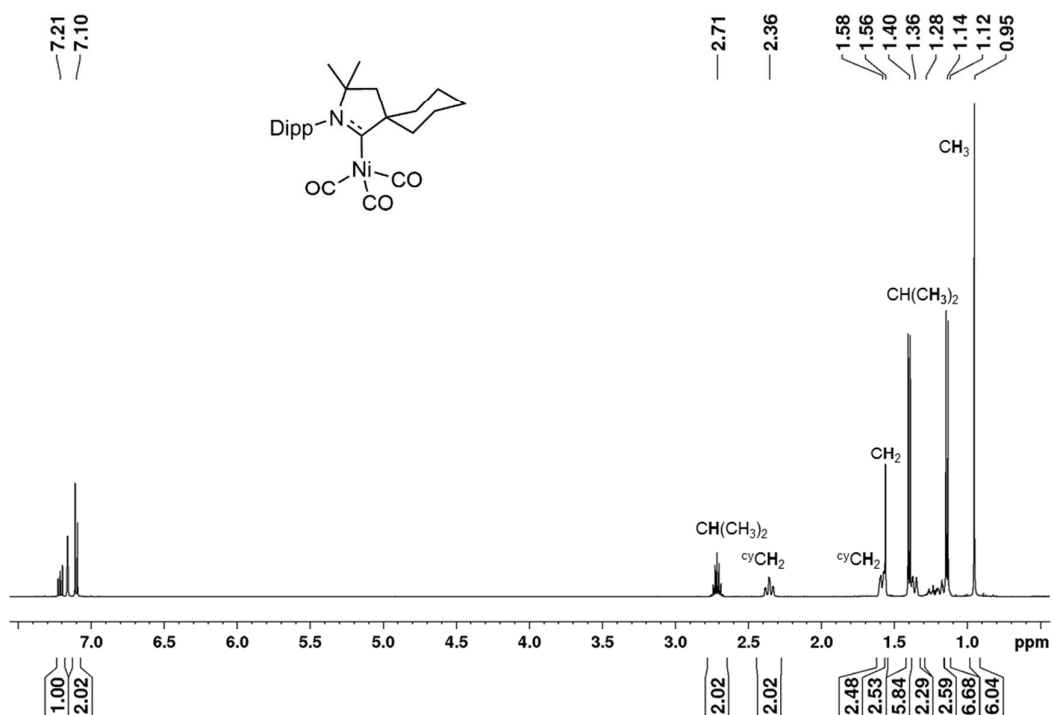
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97074 Würzburg, Germany*

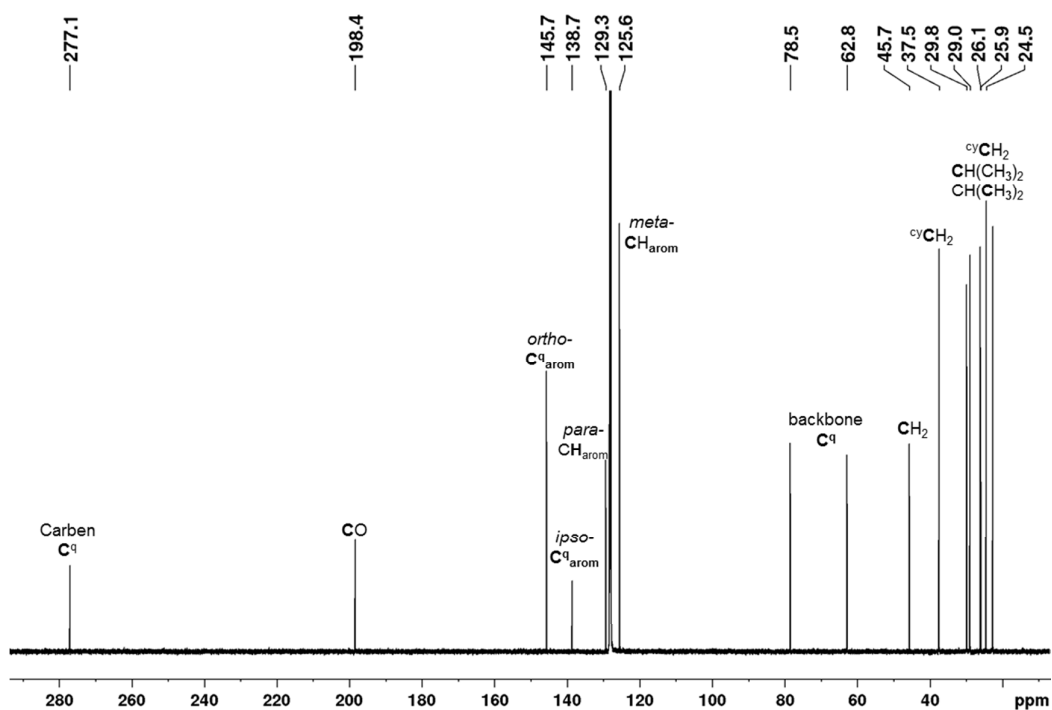
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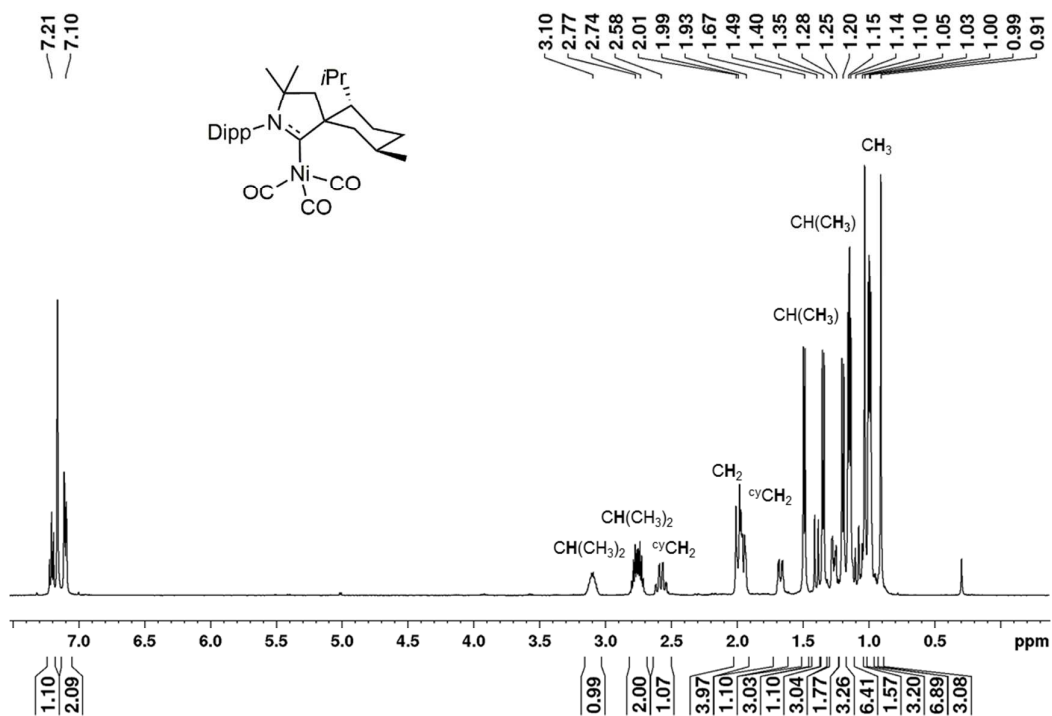
## 1. NMR spectra of products



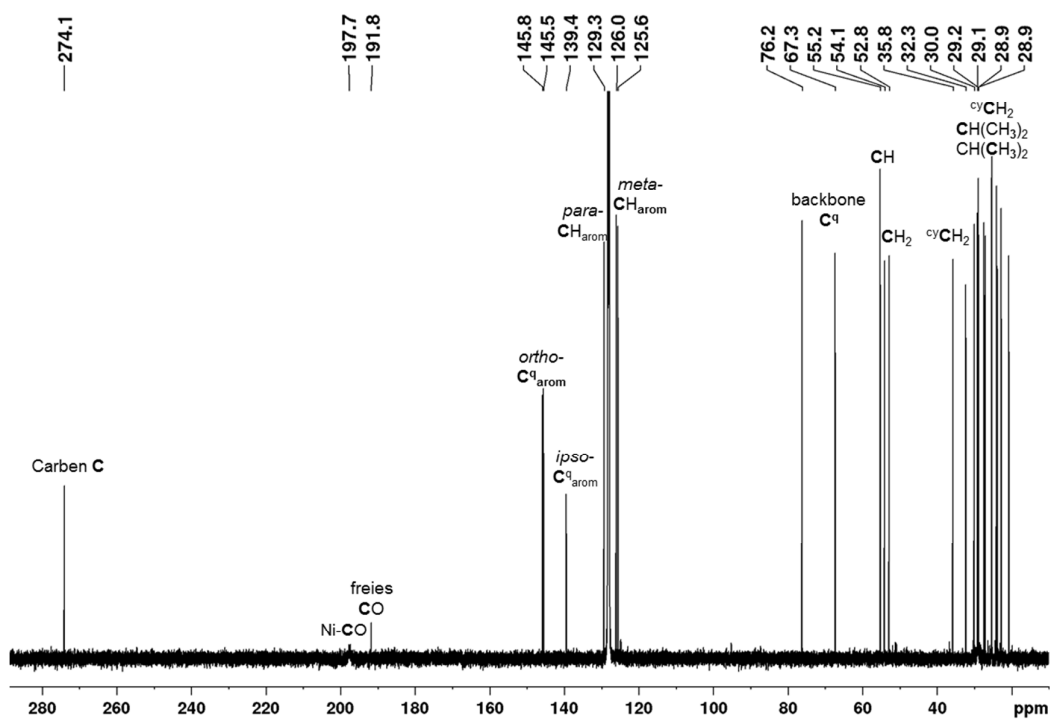
**Figure S1.**  $^1\text{H}$  NMR spectrum of complex  $[\text{Ni}(\text{CO})_3(\text{cAAC}^{\text{cy}})]$  (2b) in  $\text{C}_6\text{D}_6$  at room temperature (Dipp = 2,6-diisopropylphenyl).



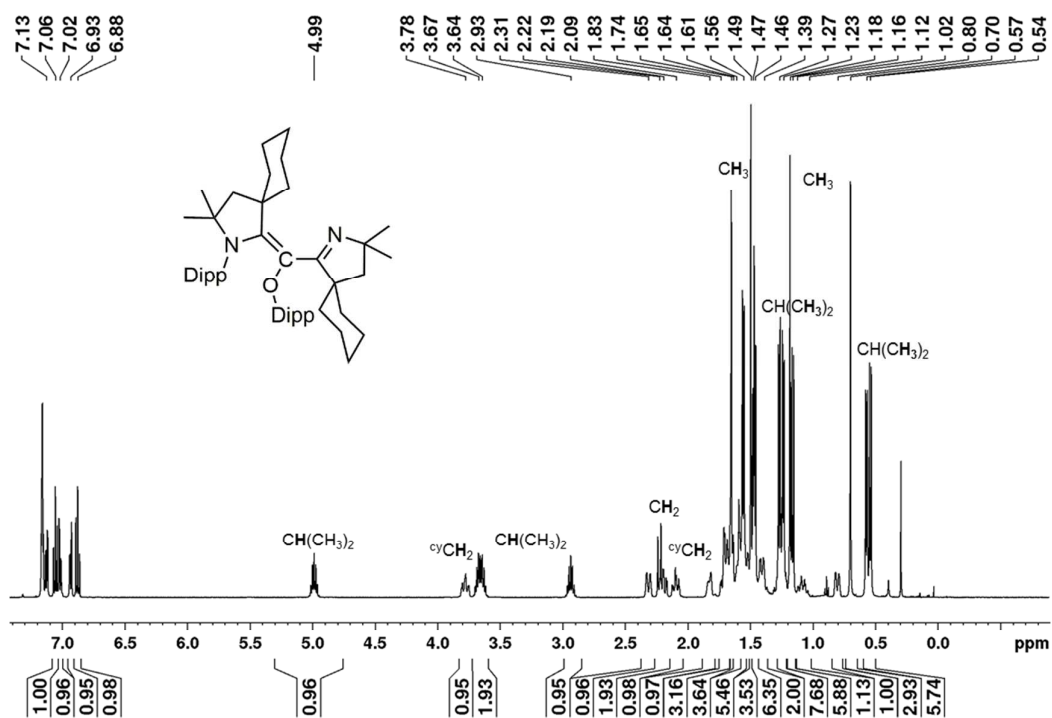
**Figure S2.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum of complex  $[\text{Ni}(\text{CO})_3(\text{cAAC}^{\text{cy}})]$  (2b) in  $\text{C}_6\text{D}_6$  at room temperature.



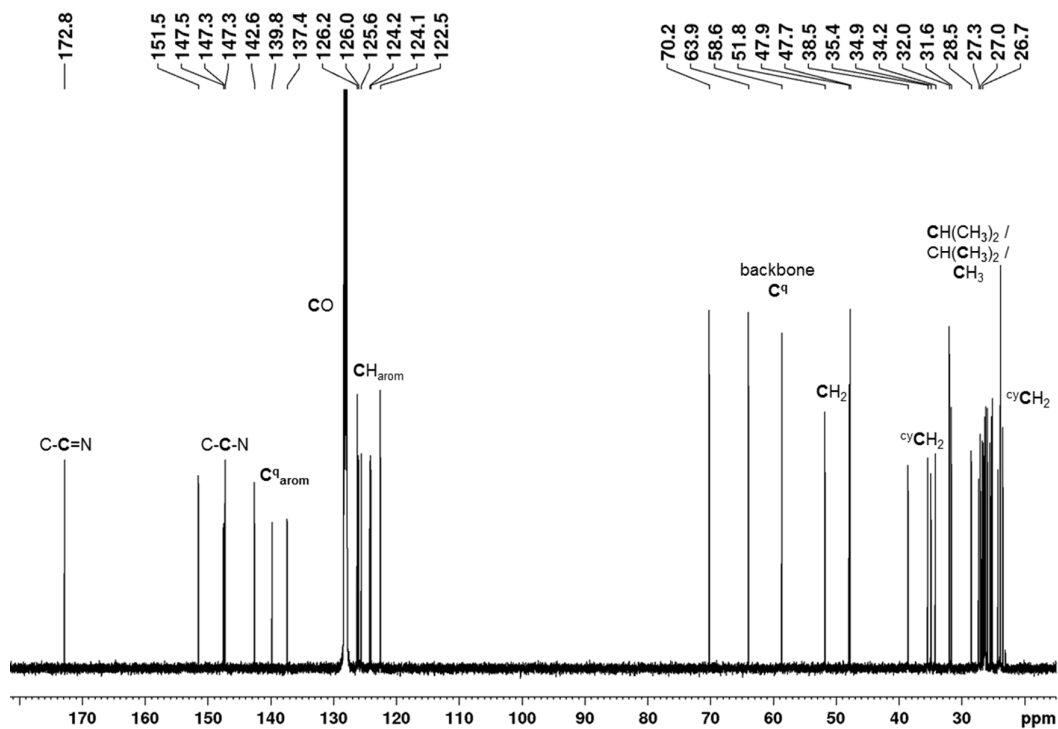
**Figure S3.** <sup>1</sup>H NMR spectrum of complex  $[\text{Ni}(\text{CO})_3(\text{cAAC}^{\text{menthyl}})]$  (**2c**) in  $\text{C}_6\text{D}_6$  at room temperature.



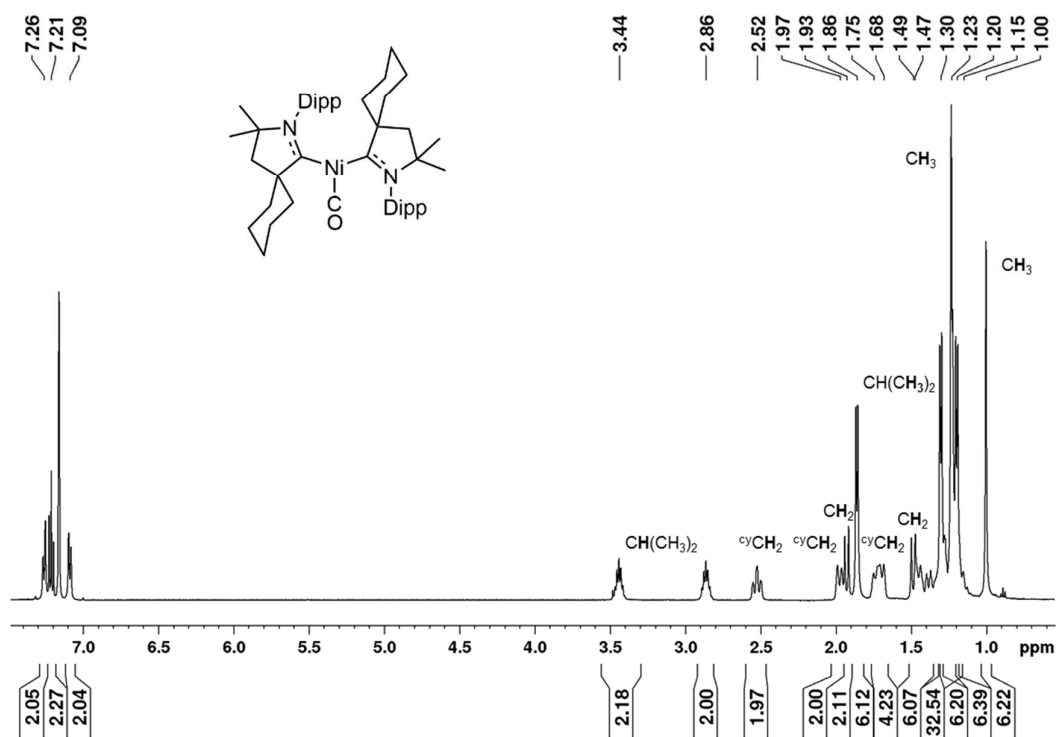
**Figure S4.** <sup>13</sup>C{<sup>1</sup>H} NMR spectrum of complex  $[\text{Ni}(\text{CO})_3(\text{cAAC}^{\text{menthyl}})]$  (**2c**) in  $\text{C}_6\text{D}_6$  at room temperature.



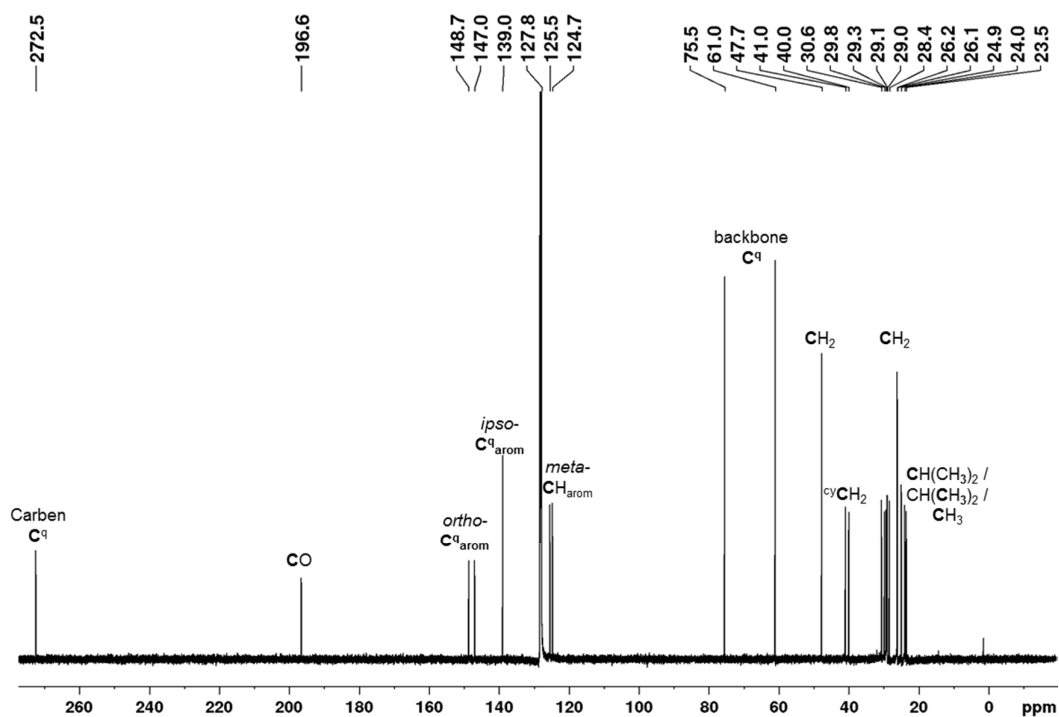
**Figure S5.** <sup>1</sup>H NMR spectrum of 3,3-diamino-2-aryloxyacrylimidamide **3b** in C<sub>6</sub>D<sub>6</sub> at room temperature.



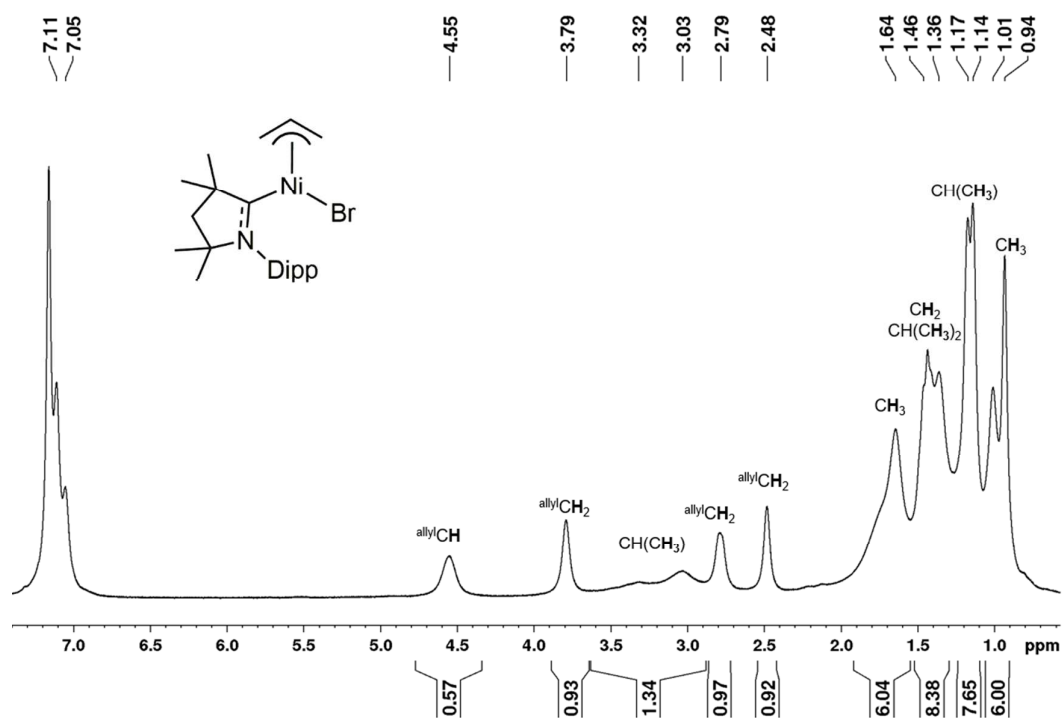
**Figure S6.** <sup>13</sup>C{<sup>1</sup>H} NMR spectrum of 3,3-diamino-2-aryloxyacrylimidamide **3b** in C<sub>6</sub>D<sub>6</sub> at room temperature.



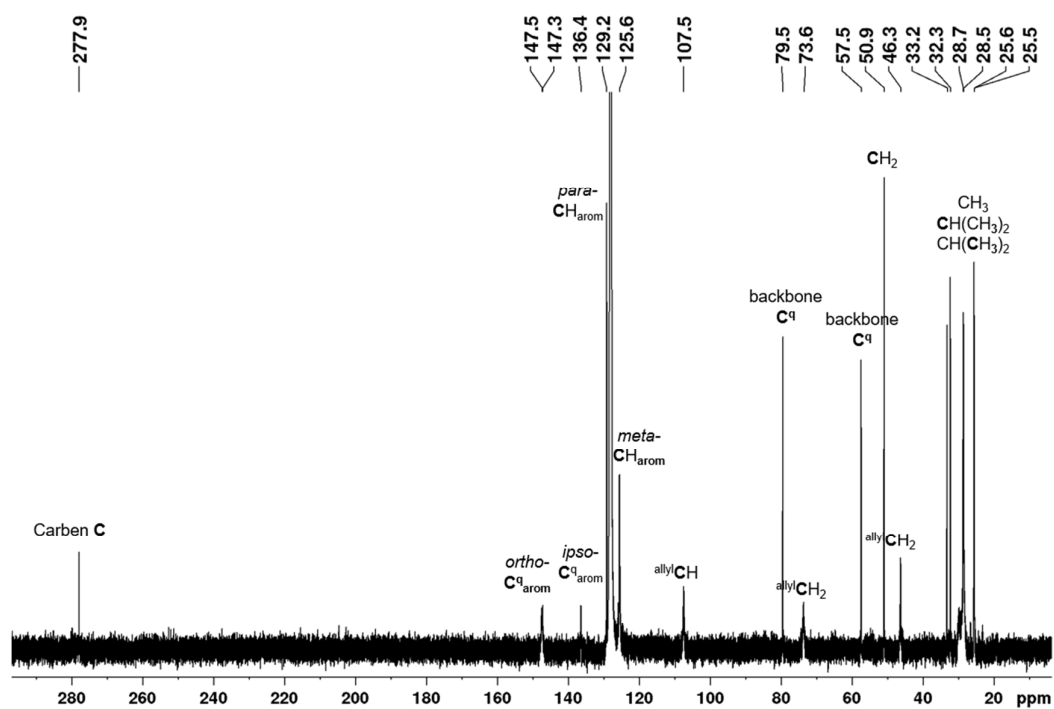
**Figure S7.**  $^1\text{H}$  NMR spectrum of complex  $[\text{Ni}(\text{CO})(\text{cAAC}^{\text{cy}})_2]$  (4b) in  $\text{C}_6\text{D}_6$  at room temperature.



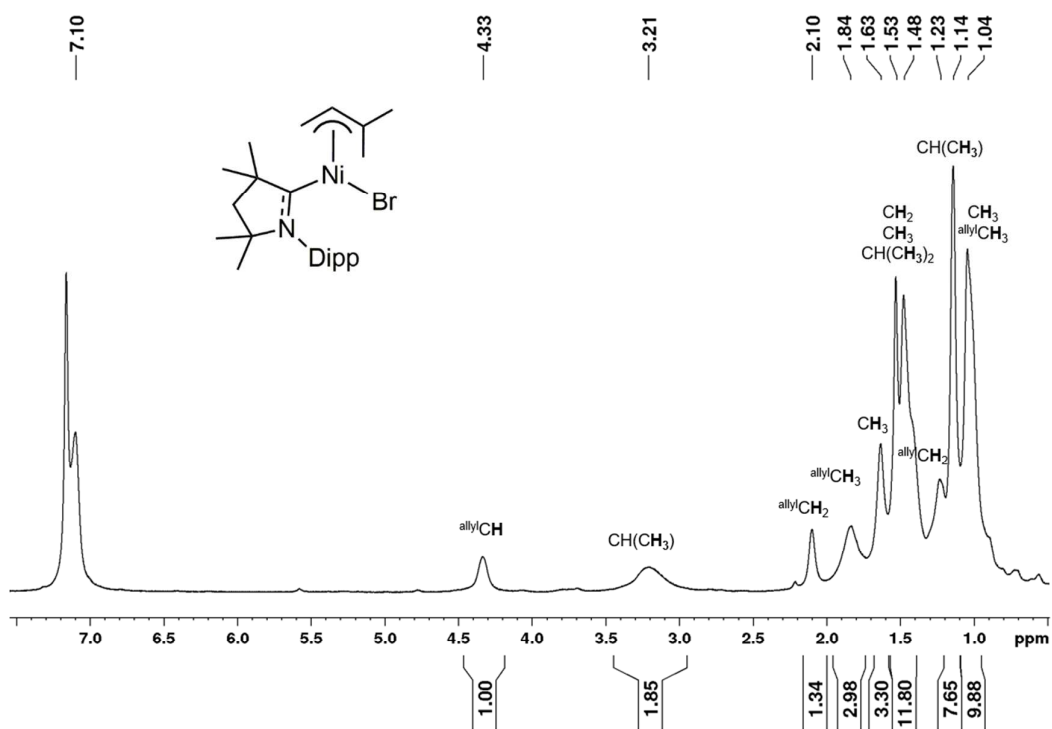
**Figure S8.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum of complex  $[\text{Ni}(\text{CO})(\text{cAAC}^{\text{cy}})_2]$  (4b) in  $\text{C}_6\text{D}_6$  at room temperature.



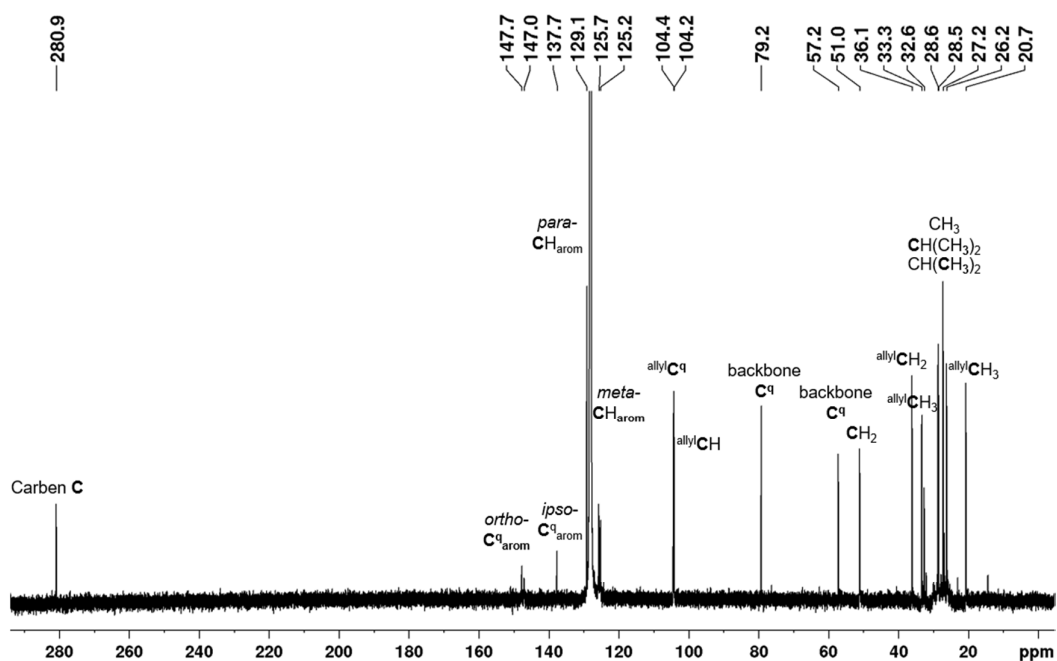
**Figure S9.**  $^1\text{H}$  NMR spectrum of complex  $[\text{NiBr}(\eta^3\text{-H}_2\text{C=CH-CH}_2\text{)(cAAC}^{\text{methyl}}\text{)]}$  (**5a**) in  $\text{C}_6\text{D}_6$  at room temperature.



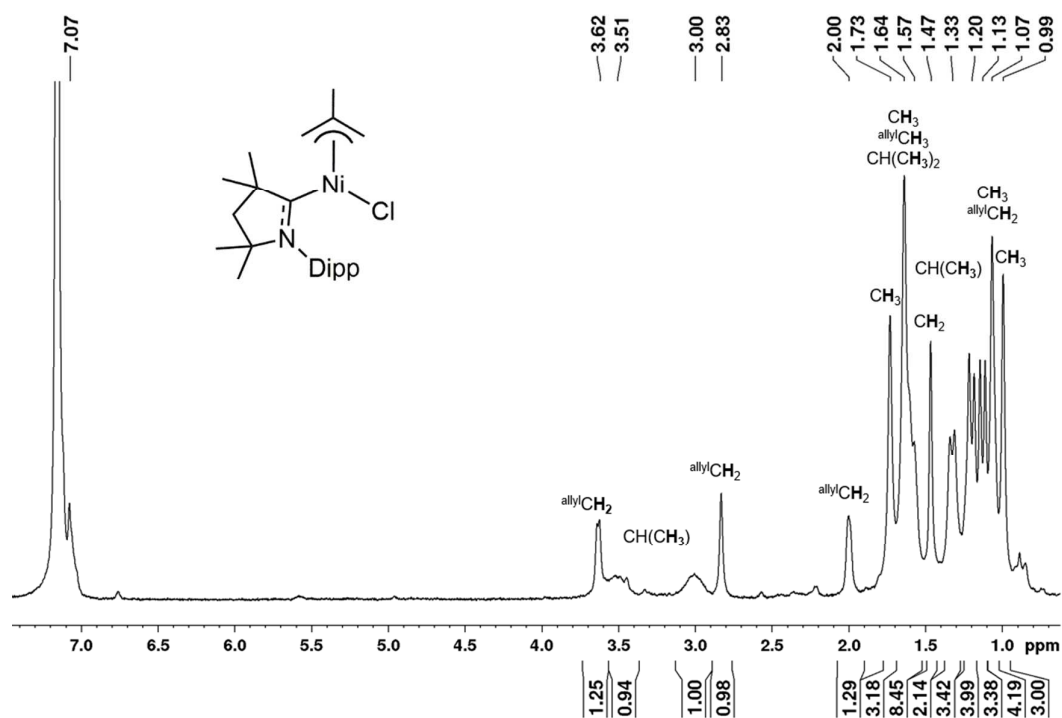
**Figure S10.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum of complex  $[\text{NiBr}(\eta^3\text{-H}_2\text{C=CH-CH}_2\text{)(cAAC}^{\text{methyl}}\text{)]}$  (**5a**) in  $\text{C}_6\text{D}_6$  at room temperature.



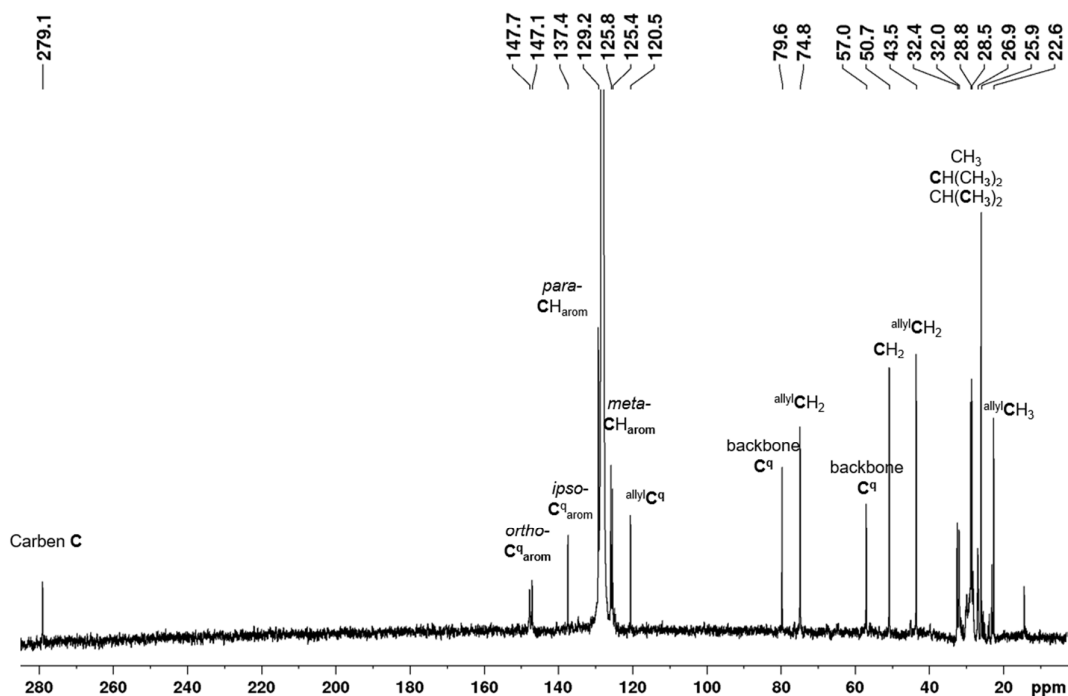
**Figure S11.**  $^1\text{H}$  NMR spectrum of complex  $[\text{NiBr}(\eta^3\text{-H}_2\text{C=CH-CMe}_2)(\text{cAAC}^{\text{methyl}})]$  (**5b**) in  $\text{C}_6\text{D}_6$  at room temperature.



**Figure S12.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum of complex  $[\text{NiBr}(\eta^3\text{-H}_2\text{C=CH-CMe}_2)(\text{cAAC}^{\text{methyl}})]$  (**5b**) in  $\text{C}_6\text{D}_6$  at room temperature.



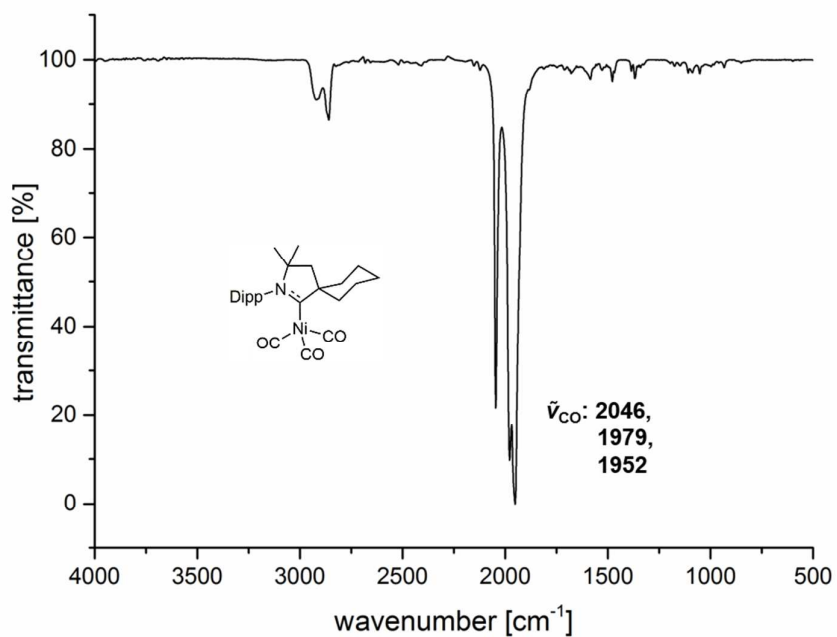
**Figure S13.**  $^1\text{H}$  NMR spectrum of complex  $[\text{NiCl}(\eta^3\text{-H}_2\text{C=CMe-CH}_2)(\text{cAAC}^{\text{methyl}})]$  (**6**) in  $\text{C}_6\text{D}_6$  at room temperature.



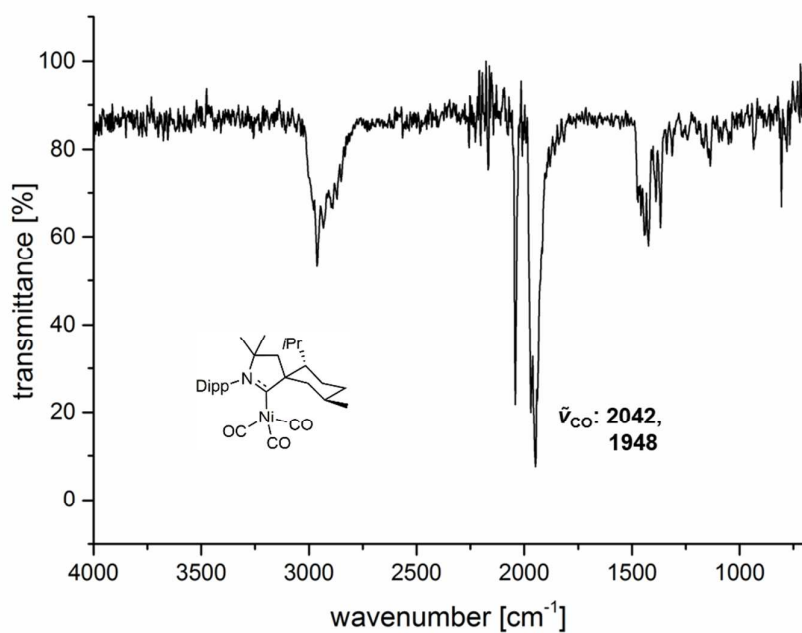
**Figure S14.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum of complex  $[\text{NiCl}(\eta^3\text{-H}_2\text{C=CMe-CH}_2)(\text{cAAC}^{\text{methyl}})]$  (**6**) in  $\text{C}_6\text{D}_6$  at room temperature.



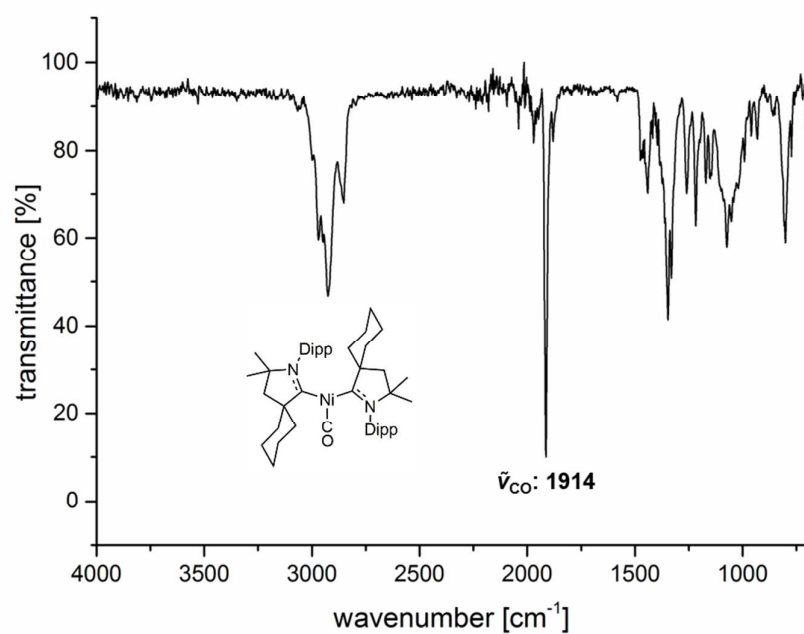
## 2. IR spectra of carbonyl complexes



**Figure S15.** IR spectrum of complex [Ni(CO)<sub>3</sub>(cAAC<sup>cy</sup>)] (**2b**) in CH<sub>2</sub>Cl<sub>2</sub>.



**Figure S16.** IR spectrum of complex [Ni(CO)<sub>3</sub>(cAAC<sup>menthyl</sup>)] (**2c**) in the solid state (ATR).



**Figure S17.** IR spectrum of complex  $[\text{Ni}(\text{CO})(\text{cAAC}^{\text{cy}})_2]$  (**4b**) in  $\text{CH}_2\text{Cl}_2$ .