

## Supplementary information for B716111E to Dalton

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# Synthesis of Nickel Complexes with Bidentate *N,O*-Type ligands and Application in the Catalytic Oligomerization of Ethylene

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**Table S1.** Analysis of Potential Hydrogen Bonds for **14**·C<sub>6</sub>H<sub>12</sub> (Å and °)

| Donor --H...Acceptor | [ARU] | D-H  | H.A  | D.A      | D-H.A |
|----------------------|-------|------|------|----------|-------|
| O1–H1...Cl2          | [-]   | 0.84 | 2.19 | 2.984(4) | 158   |
| O3–H3...Cl2          | [a]   | 0.84 | 2.20 | 2.994(4) | 158   |
| C1–H13A...O4         | [b]   | 0.99 | 2.47 | 3.200(7) | 131   |

Translation of ARU-code to Equivalent Position Code

[a] = -x,-y,1-z

[b] = 1-x,1-y,-z

**Table S2.** Analysis of Potential Hydrogen Bonds for **16**·3CH<sub>2</sub>Cl<sub>2</sub> (Å and °)

| Donor --H...Acceptor | [ARU] | D-H  | H.A  | D.A       | D-H.A |
|----------------------|-------|------|------|-----------|-------|
| O1 –H1...Cl2         | [a]   | 0.84 | 2.20 | 2.993(4)  | 157   |
| O2 –H2...Cl4         | [b]   | 0.84 | 2.15 | 2.978(4)  | 166   |
| O3 –H3...Cl2         | [-]   | 0.84 | 2.16 | 2.972(5)  | 162   |
| O4 –H4...Cl4         | [-]   | 0.84 | 2.18 | 3.017(5)  | 172   |
| C3 –H3...Cl4         | [c]   | 0.95 | 2.72 | 3.607(7)  | 156   |
| C6 – H6...O3         | [-]   | 0.95 | 2.57 | 3.123(9)  | 117   |
| C7 – H7A...Cl8       | [-]   | 0.99 | 2.69 | 3.473(13) | 136   |
| C12 – H12...O1       | [-]   | 0.95 | 2.59 | 3.140(9)  | 117   |
| C15 – H15...Cl9      | [d]   | 0.95 | 2.67 | 3.305(15) | 125   |
| C1 – H18...O4        | [-]   | 0.95 | 2.57 | 3.148(8)  | 120   |
| C21 – H21...Cl9      | [e]   | 0.95 | 2.81 | 3.515(9)  | 132   |
| C24 – H24...O2       | [-]   | 0.95 | 2.59 | 3.140(8)  | 117   |
| C25 – H25B...Cl2     | [f]   | 0.99 | 2.68 | 3.535(18) | 144   |
| C27 – H27B...Cl2     | [g]   | 0.99 | 2.59 | 3.527(16) | 157   |

Translation of ARU-code to Equivalent Position Code

- [a] = -x,1-y,-z
- [b] = 1-x,2-y,1-z
- [c] = 1-x,2-y,-z
- [d] = 1-x,1-y,1-z
- [e] = -x,2-y,1-z
- [f] = x,1+y,z
- [g] = -x,1-y,1-z

**Table S3.** Analysis of Potential Hydrogen Bonds for **18**·CH<sub>2</sub>Cl<sub>2</sub> (Å and °)

| Donor – H...Acceptor | [ARU] | D-H  | H.A  | D.A      | D-H.A |
|----------------------|-------|------|------|----------|-------|
| O1 – H1...Cl1        | [-]   | 0.84 | 2.08 | 2.922(3) | 176   |
| O2 – H2...Cl2        | [-]   | 0.84 | 2.15 | 2.986(2) | 172   |
| O3 – H3...Cl2        | [a]   | 0.84 | 2.10 | 2.934(3) | 169   |
| C3 – H3...Cl1        | [b]   | 0.95 | 2.76 | 3.702(3) | 170   |
| C6 – H6...Cl2        | [a]   | 0.95 | 2.77 | 3.652(3) | 156   |
| C17 – H17...Cl2      | [c]   | 0.95 | 2.65 | 3.560(4) | 160   |
| C19 – H19A...Cl2     | [d]   | 0.99 | 2.55 | 3.467(4) | 154   |
| C19 – H19B...Cl1     | [b]   | 0.99 | 2.82 | 3.809(5) | 172   |

Translation of ARU-code to Equivalent Position Code

[a] = 1-x,2-y,1-z

[b] = 1-x,1-y,-z

[c] = 2-x,2-y,1-z

[d] = x,y,-1+z