# The synthesis and characterization of mono and dinuclear group 13 Schiff base complexes

Antonino Aprile, David D. J. Wilson and Anne F. Richards*

Department of Chemistry, La Trobe Institute for Molecular Sciences, La Trobe University, Melbourne, Australia, 3086

## Supplementary Information

**S1:** Crystal Data for Compounds **1** - **7**:

| Compound Name | **1** $[L\{Al(Me)_2\}_2]$ | **2** $[\{(NO)Al(thf)_2\}I]$ | **3** $[H_2L\{GaCl(Me)_2\}_2]$ | **4** $[\{LGaCl\}_2(\mu Li)]GaCl_4$ |
|---|---|---|---|---|
| Chemical Formula | $C_{16}H_{30}Al_2N_2O_2$ | $C_{20}H_{34}AlIN_2O_4$ | $C_{16}H_{32}Ga_2Cl_2N_2O_2$ | $C_{24}H_{36}Ga_3Cl_6LiN_4O_4$ |
| Formula Weight | 336.38 | 520.37 | 494.78 | 873.37 |
| Crystal System | Triclinic | Monoclinic | Triclinic | Orthorhombic |
| Space Group | P-1 | C 2 / c | P-1 | Pccn |
| T(K) | 123(2) | 123(2) | 123(2) | 173(2) |
| a (Å) | 5.8360(6) | 12.7840(10) | 6.9600(2) | 11.0058(5) |
| b (Å) | 8.5491(10) | 14.1352(9) | 7.3178(3) | 19.6503(9) |
| c (Å) | 10.8312(11) | 29.117(2) | 11.7649(4) | 16.5196(9) |
| $\alpha$ ($^o$) | 68.177(10) | 90 | 80.036(3) | 90 |
| $\beta$ ($^o$) | 80.886(8) | 97.139(7) | 88.925(3) | 90 |
| $\gamma$ ($^o$) | 71.595(10) | 90 | 75.353(3) | 90 |
| $V$ (Å $^3$) | 475.49(9) | 5220.7(7) | 570.79(3) | 3572.6(3) |

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|---|---|---|---|---|
| *Z* | 1 | 8 | 1 | 4 |
| Reflections collected | 3757 | 9835 | 12375 | 35029 |
| Independent reflections | 2180 | 4697 | 2599 | 4602 |
| Data/restraints/parameter ratio | 2180/0/104 | 4697/0/266 | 2599/0/117 | 4602/0/195 |
| R int | 0.0146 | 0.0377 | 0.0362 | 0.0367 |
| Dcalc ($Mg/m^3$) | 1.175 | 1.324 | 1.439 | 1.624 |
| F(000) | 182 | 2128 | 254 | 1752 |
| R indices (all data) | R1 = 0.0415 , wR2 = 0.1017 | R1 = 0.0544, wR2 = 0.1458 | R1 = 0.0338, wR2 = 0.0654 | R1 0.0558, wR2 = 0.0894 |
| Final R indices [$I > 2\sigma(I)$] | R1 = 0.0354, wR2 = 0.0962 | R1 = 0.0483, wR2 = 0.1395 | R1 = 0.0270 wR2 = 0.0617 | R1 = 0.0367, wR2 = 0.0805 |
| Largest difference in peak and hole (e $Å^{-3}$) | 0.305 and -0.259 | 1.958 and -0.888 | 0.339 and -0.306 | 0.693 and – 0.344 |

S **1 (contd).**

| Compound Name | **5** $[LInCl]_2$ | **6** [LInCl(thf)] | **7** $[L_3In_2]$ |
|---|---|---|---|
| Chemical Formula | $C_{31}H_{44}In_2Cl_2N_4O_4$ | $C_{16}H_{26}InClN_2O_3$ | $C_{44}H_{64}In_2N_6O_6$ |
| Formula Weight | 837.24 | 444.66 | 988.63 |
| Crystal System | Triclinic | Monoclinic | Triclinic |
| Space Group | P-1 | P21/n | P-1 |
| T(K) | 173(2) | 173(2) | 173(2) |
| a (Å) | 9.4301(7) | 8.0463(14) | 8.5167(7) |
| b (Å) | 9.6908(9) | 14.8894(7) | 11.0176(8) |
| c (Å) | 11.2031(9) | 15.5567(7) | 12.5746(7) |
| α (°) | 90.674(7) | 90 | 80.165(6) |
| β (°) | 110.084(7) | 93.294(8) | 80.237(5) |
| γ (°) | 112.240(8) | 90 | 73.433(7) |
| *V* (Å $^3$) | 878.10(13) | 1860.7(3) | 1105.15(14) |
| *Z* | 1 | 4 | 1 |
| Reflections collected | 5976 | 24793 | 10106 |

| | | | |
|---|---|---|---|
| Independent reflections | 3427 | 4740 | 4908 |
| Data/restraints/parameter ratio | 3427/73/213 | 4740/0/208 | 4908/7/292 |
| R int | 0.0559 | 0.0316 | 0.0286 |
| Dcalc ($Mg/m^3$) | 1.583 | 1.587 | 1.485 |
| F(000) | 422 | 904 | 508 |
| R indices (all data) | R1 = 0.0505, wR2 = 0.1247 | R1 = 0.0477, wR2 = 0.0934 | R1 = 0.0421, wR2 = 0.0877 |
| Final R indices [$I > 2\sigma(I)$] | R1 = 0.0442, wR2 = 0.1187 | R1 = 0.0356, wR2 = 0.0854 | R1 = 0.0350, wR2 = 0.0838 |
| Largest difference in peak and hole (e $Å^{-3}$) | 1.675 and -0.996 | 0.883 and -0.949 | 0.681 and – 0.589 |

**S2**: DSC Data for **7**.