The Crystal Structures of Dimeric Di(*tert*-butyl)aluminium and -gallium Iodides

Xin Tian[a], Roland Fröhlich[b], and Norbert W. Mitzel[a]

[a] Institut für Anorganische und Analytische Chemie, Westfälische Wilhelms-Universität Münster, Corrensstr. 30, D-48149 Münster, Germany
[b] Organisch-Chemisches Institut, Westfälische Wilhelms-Universität Münster, Corrensstr. 40, D-48149 Münster, Germany

Reprint requests to Prof. Dr. N.W. Mitzel. Fax: +49 (0)251 83 36007.
E-mail: mitzel@uni-muenster.de

Z. Naturforsch. **60b,** 247 – 250 (2005); received November 22, 2004

The syntheses of di^{t}butylaluminium and -gallium iodide *via* metathesis reactions of the respective chlorides with lithium iodide are reported. The compounds were identified by elemental analyses, multinuclear NMR spectroscopy (^{1}H, ^{13}C, ^{27}Al) and mass spectra (EI). The structures obtained by single crystal X-ray diffraction reveal that the new compound ^{t}Bu$_2$AlI crystallizes in the monoclinic crystal system, space group $P2_1/n$, as a dimer with a planar Al_2I_2 four-membered ring. The crystal structure of the monoclinic structure of ^{t}Bu$_2$GaI was redetermined. Its mass spectra reveal the existence of trimers and dimers in addition to the predominant monomeric species in gas phase.

Key words: Aluminium, Gallium, Organometallic Compounds, Crystal Structure