

# Crystal Structures of the Supramolecular Aggregates of the Methyl and Chloro Substituted Gallanes $\text{Me}_x\text{GaCl}_{3-x}$

Christian Lustig and Norbert W. Mitzel

Institut für Anorganische und Analytische Chemie, Westfälische Wilhelms-Universität Münster,  
Corrensstr. 30, D-48149 Münster, Germany

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

Z. Naturforsch. **59b**, 140 – 147 (2004); received December 15, 2003

*Dedicated to Professor Ingo-Peter Lorenz on the occasion of his 60<sup>th</sup> birthday*

The crystal structures of the complete series of compounds of the general formula  $\text{Me}_x\text{GaCl}_{3-x}$  have been determined. New polymorphs of  $\text{GaCl}_3$  and  $\text{MeGaCl}_2$  were found. All chloro compounds  $\text{Me}_x\text{GaCl}_{3-x}$  ( $x = 0, 1, 2$ ) are dimers with  $\text{Ga}_2\text{Cl}_2$  four-membered rings.  $(\text{GaCl}_3)_2$  and  $(\text{MeGaCl}_2)_2$  are aggregated into layers with the same aggregation motif (each molecule connected to four neighbouring molecules),  $(\text{Me}_2\text{GaCl})_2$  is associated in a ladder-like structure (each molecule connected to two neighbouring molecules),  $\text{GaMe}_3$  forms weakly  $\text{Ga}\cdots\text{C}$  bound pseudo-tetramers aggregated into layers by further  $\text{Ga}\cdots\text{C}$  contacts (each molecule has two shorter  $\text{Ga}\cdots\text{C}'$  and  $\text{C}\cdots\text{Ga}'$  and two weaker  $\text{Ga}\cdots\text{C}'$  and  $\text{C}\cdots\text{Ga}'$  contacts).

*Key words:* Gallium, Crystal Structure, Supramolecular Chemistry, Aggregation