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# Structure Data of Free Polyatomic Molecules

Subvolume C:

Molecules containing Three or Four Carbon Atoms

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## Preface

The first volume of this series, "Structure Data of Free Polyatomic Molecules" published in 1976 as II/7, contained all structural data for free polyatomic molecules in the ground state and in excited electronic states published in journals between 1960 and June 1974. Three supplementary versions, II/15 (covering data from July 1974–1984), II/21 (1985–1989) and II/23 (1990–1993), were published in 1987, 1992 and 1995, respectively. Then a set of four subvolumes, II/25 A–D, which was a supplemented and revised version of all the preceding volumes and which included additional data from 1994–1995, was published in 1998–2003.

The present volume II/28 also consists of four subvolumes, each containing all the structural data published between 1996 and 2002 and a few structures published after 2002. Therefore, this volume, linked to II/25, is a comprehensive source of the data for more than 5000 free polyatomic molecules published between 1960 and 2002 inclusive:

Subvolume **A**: 321 molecules containing no carbon atoms;  
Subvolume **B**: 332 molecules containing one or two carbon atoms;  
Subvolume **C**: 284 molecules containing three or four carbon atoms;  
Subvolume **D**: 341 molecules containing five or more carbon atoms.

Each subvolume contains an electronic version on CD-ROM (Portable Data Files, PDF 4.0, the Acrobat reader 4.0 with full text search engine for a variety of computer platforms is included).

All experimental methods for the determination of quantitative structural data of free molecules have been considered: microwave, infrared, Raman, electronic and photoelectron spectroscopy and related spectroscopic methods as well as electron diffraction. All data obtained by these methods have been critically evaluated and compiled. The data are presented separately for each molecule, together with original references and in many cases with computer-drawn figure(s).

Our sincere thanks are due to the Editor in Chief, Professor W. Martienssen, for his thoughtful guidance and to all authors of the present volume for their thorough and intensive work and for close cooperation; to the late Dr. B. Mez-Starck, Freiburg, and AG Chemieinformations-systeme, Universität Ulm, for their valuable assistance and support; and to Springer-Verlag, especially Dr. R. Poerschke, for continual support and care. We greatly appreciate the expert help of Professors N. Inamoto and M. Nakahara for suggestions on the nomenclature and Dr. D.A. Ramsay with checking the English text.

We are also grateful to the former Editors in Chief of Landolt-Börnstein and the former Volume Editors for II/7 and 15: the late Professor K.-H. Hellwege, Dr. A.M. Hellwege and Professor O. Madelung, for their initiative and permanent support, to the coauthors of the preceding volumes II/7, 15, 21, 23 and 25: Drs. J.H. Callomon, G. Graner, W.J. Lafferty, A.G. Maki and C.S. Pote, for their expert contributions, and to the Redaktion Landolt-Börnstein Darmstadt for their valuable help, especially Dipl. Phys. T. Schwaibold for his reliable and careful assistance in preparation of this subvolume.

Tokyo, Ulm and Shizuoka, October 2006

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