

Book review

GMELIN HANDBOOK OF INORGANIC CHEMISTRY, Main Series, 8th Edition, CARBON. Part D5. CARBON-SULFUR COMPOUNDS (Continuation), 1977, xvi + 237 pages, DM 571, \$ 262.70. Part D6. CARBON-SULFUR COMPOUNDS (Continuation); CARBON-SELENIUM AND CARBON-TELLURIUM COMPOUNDS, 1978, xxiv + 264 pages, DM 641, \$ 294.90. D. Koschel, chief editor, Gmelin Institut für Anorganische Chemie der Max-Planck-Gesellschaft zur Förderung der Wissenschaften, Springer-Verlag, Berlin/Heidelberg/New York.

The present two volumes conclude the Gmelin Handbook's coverage of carbon and its compounds in the 8th Edition (13 volumes total, beginning in 1967 with a discussion of elemental carbon). Part D5 deals principally with carbon oxysulfide and derived ions, various NCS species (the radical and the +1, -1 and -2 ions) and the α,ω -dicyanopolysulfides, while Part D6 concludes the coverage of carbon-sulfur compounds with discussions of thiocyanic acid, thiourea, thiocarbamic acid and its derivatives, thiocarbonyl halides and the halothiocyanates. Part D6 also reports all that is known about carbon-selenium compounds (principally CSe, CSe₂, COSe, selenocarbonic acids and selenocarbonates, the NCS₂⁻ ion, cyanoselanes, selenocyanic acid, selenourea, selenocarbonyl halides) and carbon-tellurium compounds. Six pages suffice to bring us all available information on C-Te species and carbon-selenium compounds can be taken care of in only 66 pages. The lack of research activity on these carbon-heavy chalcogen compounds is not surprising when one considers their relative instability and malodorous properties. What is surprising is how much is known about some of these nasty customers. For instance, carbon diselenide is difficult to prepare and purify and is unstable at room temperature; even in high dilution, its odor is unpleasant, and at higher concentrations, it is strongly irritating to the eyes and the respiratory system. Nevertheless, there are 14 pages full of data on this compound - diverse physical and thermo-

dynamic data, spectroscopy, chemical transformations, including thermolysis, photolysis, polymerization and reactions with inorganic and organic reactants. (To the organometallic chemist the Group VIII metal complexes which contain CSe_2 as a ligand will be of interest).

The most important sulfur compounds in these two volumes are thiourea (79 pages in Part D6), OCS (139 pages in Part D5) and the thiocyanate ion (62 pages in D5). These, as well as the less important carbon-sulfur compounds, are presented with the usual Gmelin thoroughness: preparation, physical, thermodynamic, spectroscopic and mechanical properties and chemical reactions.

Both books are written in German, but English translations of the foreword, the table of contents and of chapter titles and section headings are provided.

Although the emphasis is on the inorganic and physical chemistry of carbon and its compounds in these Gmelin volumes, the organic chemist will find much that is useful in them.

Department of Chemistry
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139 (USA)

Dietmar Seyferth