Chapter 6 focusses on NMR studies of nuclei other than ^{29}Si and ^{27}Al in zeolites and non-zeolitic silicates. The topics covered are ^{11}B NMR studies of borosilicates and borozeolites, ^{17}O resonances of framework oxygen, NMR of charge-compensating cations, and ^{13}C and ^{1}H studies of zeolites. The final chapter is devoted to high-resolution NMR of adsorbed molecules. Adsorption on zeolites, silica surfaces, silicates and aluminosilicates, and diamagnetic and paramagnetic adsorption sites are considered. Most work discussed in this chapter deals with ^{1}H, ^{13}C, ^{15}N, and ^{129}Xe resonances.

The book as a whole is well organized and gives useful information for anyone who is interested in the wide range of applications to silicates, zeolites, and all kinds of adsorbed systems. But it is equally important for NMR spectroscopists who are already engaged in studying crystals and glasses and plan to extend their activity to new techniques and materials. Particular emphasis is given to all types of chemical information obtainable from the spectra, but the treatment is by no means confined to a purely descriptive presentation. A real advantage of this monograph is that it is readily comprehensible to chemists, while at the same time including the necessary physical background. Zeolite and silicate scientists will appreciate the wealth of literature references given in connection with the various NMR applications. Without hesitation this book may be recommended as an excellent approach to high-resolution solid-state NMR spectroscopy. It should not be considered as an alternative to *Colin Fyfe*'s "Solid-State NMR for Chemists", but as a useful supplement with emphasis on inorganic silicates and a more physico-chemical style of description.

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Inorganic Thermochromism. By *K. Sone* and *Y. Fukuda*. Springer, Berlin 1987. xi, 134 pp., bound, DM 168.00.—ISBN 3-540-17662-4

The color change of chemical species with temperature is a widespread phenomenon and can be traced back to a variety of causes. The book of *Sone* and *Fukuda* concentrates mainly on the thermochromism of transition metal complexes in solution which results from changes in the crystal field. The introductory chapter defines the subject and gives some instructive examples, including the red to violet to green color change of Cr^{3+} doped α-Al_2O_3 with increasing temperature. Chapter B considers chromotropic phenomena, mainly of cobalt(II)chloro complexes, which result from the tetrahedral-octahedral interconversion and from ligand exchange reactions in various protic and aprotic solvents (including an analysis of inert salt effects). The color shift from the blue tetrahedral $CoCl_4^{2-}$ to the pink octahedral $Co(OH_2)_6^{2+}$ complex is a well known example of this category.

Chapter C concentrates on nickel(II) chelates in solution. An analysis of the spectral changes which accompany the conversion of paramagnetic octahedral, square pyramidal and tetrahedral to diamagnetic square-planar complexes is given. Interconversions of this type which depend on the donor properties of the solvent are extensively discussed. Geometrical changes of this kind may also occur within monomer-polymer equilibria. Finally isomerization reactions (nitro-nitrito) are mentioned. The next chapter is devoted to the thermochromism of copper(II) complexes. They are geometrically extremely variable as a consequence of the Jahn-Teller effect of the d^9 configurated central ion, and change their coordination sphere rather continuously from elongated octahedral or square pyramidal to square-planar—in line with corresponding color shifts.

Chapter E comprises miscellaneous chromotropic phenomena of other transition metal complexes in solution. Thermochromism may be observed, for example, in octahedral Fe^{II} or Fe^{III} complexes if the ligand strength is very near to the critical value of the ligand field parameter, which determines the transition from the high-spin to the low-spin configuration. Equally interesting is the color change which accompanies the addition of a second axial ligand to square-pyramidal $[O{V^{IV}}(acac)_2]$ complexes. The last chapter outlines the thermochromism of transition metal complexes in the solid state. After considering irreversible reactions caused by thermal dehydration, desamination and isomerization, a few examples of reversible thermochromism are presented. In particular, the compressed tetrahedral-square-planar interconversion of $Cu^{II}L_4$ complexes, which often occurs continuously with temperature, is discussed and compared with the discontinuous (but also reversible) change from a tetrahedral to an octahedral coordination in the case of Ni^{II} complexes. Finally, the fluorescence thermochromism of certain copper^{I} complexes is mentioned, and a short section describes the application of thermochromic compounds as color indicators for temperature changes.

The book under review is the first attempt to give a rather thorough description of the exciting world of thermochromism and related chromotropic phenomena in inorganic chemistry. It is easy and enjoyable to read, and will certainly be extremely informative for scientists and graduate students who are involved in the spectroscopy of transition metal complexes and compounds in solution or in the solid state. Because the authors have themselves been engated for many years in the solution chemistry of transition metal complexes, the main emphasis is laid upon this subject; the equally fascinating thermochromism of solid compounds is unfortunately not very extensively treated. Although the authors state in the preface that this was not their intention, the book would have fulfilled its purpose even more effectively if there had been a higher degree of sophistication in the discussion of the physical basis of the thermochromic properties, and an even stronger emphasis on the correlation of these properties with the electronic structures of the transition metal ions involved. However, this is a book with many merits, which can be warmly recommended to all chemists who are interested in and fascinated by color phenomena in inorganic chemistry.

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