

*Toxic Metals in the Atmosphere*, by J.O. Nriagu and C.I. Davidson (Eds.), Wiley-Interscience, New York, NY 10158, 1986, ISBN 0-471-82654-5, 635 pages, \$99.95.

The air we breathe is a more complex mixture than often appreciated. The growing apprehension about air quality has focused attention on the trace materials in air, as well as on the more widely knowns, such as CO, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> and dusts.

In this volume, 24 contributing authors from several countries have presented a 19-chapter update on the elements and compounds in air, including Al, Si, S, K, Ca, Ti, Mn, Fe, Ni, Cu, Zn, Sr, Br, Cd, Sn, V, and Pb.

That man-made pollution is not the only source of these substances in air is made clear from a discussion of natural sources. A range of values for many of these worldwide is given. Wind-borne dust and volcanic eruption release the largest amounts of these compared to other sources.

Nonferrous metal mining, especially lead-zinc ores, produces significant emissions which also contain high concentrations of Cd and As. While SO<sub>2</sub> is the main chemical pollutant from such nonferrous production, the dust and fumes contain several metals. Iron and steel, and ferroalloy manufacture release Cd, Cu, Cr, Mn, Ni, Pb and Zn as well as Fe. Refuse incineration and sewage sludge incineration, increasing in popularity as fewer landfills are available, also contribute to air emissions of metals, but data are often scattered and incomplete. Anthropogenic sources (energy generation, industrial metal production, and vehicular traffic) have been studied worldwide, as well as on a regional basis. This volume is an excellent source of such data and of the references which make any study of air considerably easier than a study by study of each element or compound.

One very practical application of these studies is the use of metals as tracers for atmospheric movements. Acid precipitation is held responsible in many circles for the decline in pH of many lakes and ponds, especially in the Adirondacks and southern Canada. To trace the emissions of SO<sub>2</sub> and NO<sub>x</sub> from other areas, sampling at several New York and mid-western state locations for the Mn/V ratio has permitted excellent correlation of air movements over many kilometers.

This volume is a must for anyone interested in more details than commonly discussed concerning the atmosphere, and will be a basic reference for years.

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*Chemical Guide to the OSHA Hazard Communication Standard*, The Suspect Chemicals Sourcebook, First Edition, K.B. Clansky (Ed.), Roytech Publications, Inc., 1499 Old Bayshore Highway, Burlingame, CA 94010, U.S.A., 1986, ISBN 0-961209-2-3-2, 281 pages, paperback, \$49.50.