Carbon Dioxide: Friend or Foe?


**Carbon Dioxide Review: 1982**


These two books on carbon dioxide in the atmosphere stand in contrast in many ways: Idso's is a brief, simple, well-written text of less than 92 small pages; Clark's is equally well-written on 469 large pages. Idso deals almost exclusively with the climatic analysis; Clark's authors treat many aspects of the growth of atmospheric carbon dioxide from the cause to the consequences. Idso writes alone; Clark edits scholarly papers by 17 sets of authors plus interesting comments of many others. Idso reviews, evaluates, and compares; Clark's volume presents new material as well as analyses and predictions.

First, I will make some remarks on Idso's *Carbon Dioxide: Friend or Foe*. The volume is largely a tirade against the establishment, both for mistreating him and for misinforming the public. As a member of that establishment, although not honored with any quotation, I found myself incensed by it. Idso continually sets up strawmen to demolish and uses selective quotes to support his points when other viewpoints really represent the mainline thought. For example, one of his theses contends that the establishment believes that the carbon dioxide greenhouse warming signal has already been demonstrated and he spends a good deal of the text arguing otherwise. But the mainline view is quite the contrary; most of us do not think such a warming has as yet been found. A whole chapter in Clark's volume suggests how we might search for the signal. It is hard to count the number of times he attributes "catastrophe" to the establishment. Contrary to Idso, virtually all climate modelers admit freely that their current models may be in error and that more research is needed. But Idso's contention that maybe it will cool from more carbon dioxide (he doesn't actually say it will) needs even more examination.

Clark's book has received rave reviews from many places. Any attempt to summarize its content would fail pitifully. Many of the papers are at the cutting edge of current knowledge—Professor Keeling presents an update of the Mauna Loa carbon dioxide record; Jerry Olson presents a new map of the land biological carbon density; and Ralph Rotty presents a recent (through 1980) tabulation of fossil fuel carbon dioxide estimated emissions. Articles by Charles F. Cooper, George Woodwell, and Jerry Olson treat the biological aspects of the carbon dioxide issue. Sylvan Wittwer, Norman Rosenberg, and Peter Oram provide comments on Cooper's paper. While the carbon dioxide issue is presented in pieces, each by a different author, this book is well worth having in the library of any scientist interested or involved in the predictions and consequences of growing atmospheric carbon dioxide.

As a postscript, it is perhaps worth noting (as both Idso and Cooper do rather effectively) that growing carbon dioxide is not all detrimental. The well-known benefits to a growing biosphere have been well documented, both by Idso's and Clark's volumes. The question many ask is whether the possibility of moving into a new and unknown warmer climate does or does not hold more potential harm than we gain from carbon dioxide fertilization.—LESTER MACHTA, Director, Air Resources Laboratory, NOAA, Rockville, MD 20852.

**Handbook of Environmental Data on Organic Chemicals, Second Edition**


This handbook is a very thorough compilation of the physical, chemical, and biological properties of over 1300 organic chemicals that include such groupings as pesticides, detergents, phthalates, polynuclear aromatics, and polychlorinated biphenyls. It will be extremely useful to people whose research and information needs involve organic chemicals that are a direct or potential hazard to the environment and man. In addition, those who design and use environmental models should find this book indispensable as a reference.

The book starts with an extensive introduction (135 pages) that clearly explains and describes the four categories of data (properties, air and water pollution factors, and biological effects) and how the data can be used to evaluate environmental behavior. Research data are included along with the category descriptions to emphasize use and relevance to environmental situations. For example, much of the properties section deals with the octanol/water partition coefficient, its definition, method of calculation, and relationship to water solubility, bioaccumulation, adsorption, structure-toxicity correlations, and skin-adsorptive properties. Other property data include formula, physical appearance, molecular weight, water solubility, melting and boiling points, vapor pressure, density, and specific gravity.

The air pollution section includes data on conversion factors, odor, atmospheric reactions, natural and man-made sources, control methods, and sampling and analysis. Over half of the section is devoted to the subject of odor, with definitions and examples of measurements such as the odor index and threshold odor concentration. Several tables and figures illustrate how these measurements vary between and within different chemical classes.

The items covered in the water pollution section include biodegradation rates, oxidation parameters (i.e., BOD, TOC, COD, etc.), water quality measurements, sources, wastewater treatment, sampling, and analysis. The discussion is primarily directed toward use of these data to measure the impact of organic chemicals on natural water. The biological effects section deals with residues, bioaccumulation values, and toxicological effects on a wide range of biological species including bacteria, algae, higher plants, aquatic vertebrates and invertebrates, insects, birds, mammals, and man. The biological classification and the Latin and English names for all species listed are also provided.

The data are presented in a useful format. Chemicals are listed by common name and alphabetically arranged, with alternate names cross-referenced to the common name. Major uses of the chemicals are usually included. The amount of data presented for each chemical varies widely, from many pages for well-known environmental pollutants to single data points for obscure compounds.

The completeness and accuracy of data presented in a handbook this large is difficult to judge. However, when certain pesticides and well-known environmental pollutants were checked with other references, data-point agreement was good and quantity and diversity of data was found to be larger than any other source. Some minor discrepancies were found for certain properties like water solubility and vapor pressure, which probably reflects less sophisticated analytical methods cited in older references. Also, a few references were incomplete (name and date only) and some were inaccurate. However, these minor problems do not distract from an otherwise excellent reference book.—ALLAN R. ISENSEE, Pesticide Degradation Laboratory, ARS, U.S. Department of Agriculture, Beltsville, MD 20705.