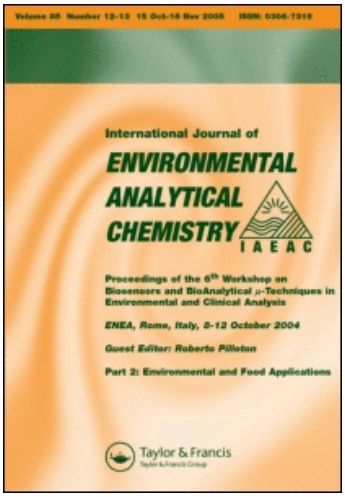

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A review of: "Potential Industrial Carcinogens and Mutagens, Studies in Environmental Science 4 by Lawrence Fishbein, Little Rock, Arkansas, 534 pages, many figures and tables, linen, format 250 × 175 mm, printed by Elsevier Scientific Publishing Company, Amsterdam, The Netherlands 1979, 73.25 US$ or 150.-Df1."

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Book Review

POTENTIAL INDUSTRIAL CARCINOGENS AND MUTAGENS, Studies in Environmental Science 4 by Lawrence Fishbein, Little Rock, Arkansas, 534 pages, many figures and tables, linen, format 250 × 175 mm, printed by Elsevier Scientific Publishing Company, Amsterdam, The Netherlands 1979, 73.25 US$ or 150.- Dfl.

It is a well and clearly written fourth volume of a series "Studies in Environmental Science" (Volume 1: Atmospheric Pollution 1978/Volume 2: Air Pollution Reference Measurement Methods and Systems 1978/ Volume 3: Biogeochemical Cycling of Mineral-Forming Elements 1979). On the first 92 pages one finds four introductory chapters (Introduction/Combination Effects in Chemical Carcinogenesis/Aspects of Epidemiology, Risk Assessment and "Threshold Dose"/Tabular Summaries of Potential Industrial Carcinogens and Mutagens). They give an excellent understanding of the present knowledge in the fields of cancerogenicity, mutagenicity and teratogenicity, induced by chemicals in the environment, and in testing methods with their individual advantages and limitations. It is stated that from all the chemicals on the market only a relatively small portion—approximately 6000 substances—have been tested for their cancer causing potential. Of these about 1000 compounds have thus far been found to be tumorigenic in test animals, from which about 100 chemicals are definitely cancerogenic in experimental animals.

Apart from better knowledge of the interactions and of further testing, a greater focus on potent carcinogens compared to weak carcinogens is required, with a greater concern given to those compounds and their combinations, to which comparatively large segments of the population are exposed, keeping in mind the typical latency period of 15 to 40 years for cancer. Possible screening systems are explained, dependent on the formation of reactive metabolites.

There is a good table for 25 chemicals associated with cancer induction in humans "Comparison of Target Organs and Main Routes of Exposure in Animals and Humans". There are also descriptions of models for risk-assessment. Of special value is the tabular summary of potential industrial carcinogens and mutagens, in which the author tries to give a condensed evaluation of production quantities, of carcinogenicity and of mutagenicity (in bacteria, in yeast, in neuro spora, in drosophila, in mammalian cells, in

human cells, dominant lethal and host mediated) for 113 frequent chemicals in 20 classes (metals and polycyclic aromatic hydrocarbons are not included).

However, the major objective of the book is to present on 425 pages in 23 chapters information on the synthesis of 176 illustrative industrial organic chemicals, the nature of their trace impurities, production volumes and use patterns, environmental occurance, chemical and biological reactivity, estimated populations at risk, national permissible worker exposure levels (TLV's and MAC's), and the carcinogenicity and mutagenicity test systems for these agents, including combination effects. Especially valuable are the literature references up to 1978 in each chapter and the good subject index. One finds for instance good review chapters about alkylating agents, halogenated unsaturated hydrocarbons, PCB's, hydrazines, carbamates, nitrosamines, aromatic amines, benzene, toluene, anthraquinones, phosphoramides and other substances classes. On the other side information on some actual environmental pollutants—such as TCDD's, benzo(a)pyrene and other polycyclic aromatic hydrocarbons, metals and metal compounds—such as arsenic, nickel and chromium compounds—are unfortunately not included.

The book will be—within the mentioned limitations—of interest to toxicologists, to genetisists, to environmental health scientists and to officials working in public health and environmental protection agencies, as well as to those who have to work out regulations on how to control chemical substances.

E. MERIAN