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Book Review of Jeffrey W. Vincoli, Risk Management for Hazardous Chemicals (1996) and Andre R. Cooper, Sr., Cooper's Toxic Exposures Desk Reference (1997)

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Erratum
The citation for this review is *8 RISK 201 (1997)* in most commercial databases.

Jeffrey W. Vincoli, **Risk Management for Hazardous Chemicals** (2 vols. CRC Lewis Publishers 1996). Acknowledgments, author, Chemical Abstracts Number index, chemical name index, introduction, preface, references, structure diagrams, tables. LC 96-35282, ISBN 1-56670-200-3 [3040+ pp. Cloth $297.00, $9.95 shipping. 2000 Corporate Blvd., N.W. Boca Raton, FL 33431.]

André R. Cooper, Sr., **Cooper's Toxic Exposures Desk Reference** (CRC Lewis Publishers 1997). Chemical Abstracts Number index, chemical name index, introduction, synonyms and trade name index, tables. LC 96-35221, ISBN 1-56670-220-8 [2006+ pp. Cloth $199.00, $9.95 shipping.]

These well-produced reference works are essentially encyclopedias for those who handle or manage the handling of chemicals.[1] Substances are addressed seriatim in alphabetical order, and each work contains information about risks and ways to avoid them. It is interesting to compare these works from the same publisher.

Besides being similar in content and purpose, both are accompanied by CD-ROMs with Adobe Acrobat (.pdf) files. A Windows version of Acrobat Reader is included, but those who use other computers or operating systems can also use these disks by acquiring the (free) software from, e.g., Adobe's website.

The files are constructed so that one may go from contents pages to files for particular substances by clicking on their names. This is very helpful, but, at least with Macintosh software, one cannot easily return; it is necessary to use the file menu. Given the number of files on each disk, this is a nuisance that could have been readily avoided — by having at least one hot link to contents or indices within each file. Also, while one can do simple string searches within given files, it was not apparent that users can search the entire disk as with other other works on CD.

With regard to the content of these works, it would have been helpful if each contained a scope note. Neither states how substances were chosen. Cooper deals with fewer substances, in fewer overall pages,[2] at lower cost — and devotes more pages to each. Yet, arguably expanded coverage is not compelling if one is looking for an omitted

1 Generally these are compounds, but I also noticed listings for gasoline, kerosene and jet fuel in Vincoli.

2 Eleven vs. six pages.

substance. For example, Cooper omits formaldehyde,[3] but Vincoli lists it as a confirmed animal and suspected human carcinogen. Cooper's rationale for this omission is not transparent.

Both works provide summary tables. Vincoli's two-page Material Safety Data Sheets begin with "Hazard Warning Information" coded under health, fire, reactive and other. The remainder is in eight sections titled: "General Information," "Hazardous Ingredients and Identity Information," "Physical and Chemical Characteristics," "Fire and Explosion Hazard Data," "Reactivity Data," "Health Hazard Data,"[4] "Precautions for Safe Handling and Use" and "Control Measures and Personal Protective Equipment." Still, as he points out in his preface[5] and introduction, LD_{50} and LC_{50}, for example, are omitted as of little use in "the real world of risk management."[6] Cooper's single-page tables list only physical properties, warning properties, permissible exposure limits and hazard information and appear to be less useful.

Cooper's well-written discussion of chemicals begin with simple formulas, followed by a brief catalog of ID numbers, toxic designation, synonyms, identifying properties and labeling requirements. After a short overview of uses and characteristics, each substance is addressed under the main headings: "Health Hazard Information," "Exposure Routes and Health Effects," "Chemical Protective Clothing and Equipment," "Emergency Response," "First Aid Procedures," "Sanitation," "Medical Management" and "Workplace Monitoring and Measurement Procedures." As does Vincoli, Cooper makes helpful use of icons such as the skull and crossbones.

For example, Cooper's overview of benzene[7] reads in part:[8]

> Benzene is used mainly as raw material for synthesizing chemicals such as styrene.... It is obtained from crude petroleum. It is also used in some industrial solvents and as a constituent of motor fuels, and unleaded gasoline in

3 *See, e.g.*, Gulf South Insulation v. U.S. C.P.S.C., 701 F.2d 1137 (5thCir. 1983).

4 Subheadings include inhalation, absorption and ingestion — as well as separate treatment of carcinogenicity and emergency and first-aid procedures.

5 At *ii.*

6 At 5.

7 *See, e.g.*, Industrial Union Dept., AFL-CIO v. Am. Petroleum Int., 448 U.S. 607 (1980).

8 At 243 (emphasis added).

particular. At room temperature, benzene is a clear, colorless-to-light-yellow liquid.

Benzene is a highly volatile, flammable liquid. Because it is volatile, it can spread to a source of ignition and flash back. Its vapor is heavier than air and may accumulate in low-lying areas. ....

Benzene is absorbed rapidly after inhalation and ingestion. It is absorbed slowly through the skin; however....

The National Institute for Occupational Safety and Health... recommends that benzene be controlled and handled as a *potential human carcinogen*... and that exposure be reduced to the lowest feasible limit. The American Conference of Governmental Industrial Hygienists... has designated benzene as an A2 substance (suspected human carcinogen) having an assigned threshold limit value... of 10 ppm... as a TWA for a normal 8-hour workday and a 40-hour workweek.

Vincoli 's narratives are also well-written and begin with helpful diagrams of products' chemical structures where appropriate, their Chemical Abstracts Numbers and a grid showing health, fire, reactive and other hazard severity codes.[9] After briefly treating identifying characteristics and typical uses, he discusses three kinds of "risk assessment" under the headings health, environment and business. He concludes with about 30 references to a variety of private and government publications concerning each substance.

Addressing the *health* risk of benzene, Vincoli begins:[10]

> Benzene is an acute as well as chronic toxicant. It is a *confirmed human carcinogen* producing myeloid leukemia, Hodgkin's disease, and lymphomas by inhalation. It is also believed to be a human poison by skin contact. It is moderately toxic by ingestion. Benzene can severely irritate the eyes.... Chronic effects are much more severe than its acute toxicity.

Addressing the *business* risk of benzene, he advises:[11]

> Accidents or mishaps involving benzene can present a serious threat to business operations. ....
>
> Company attorneys, safety and health professionals, and environmental specialists should be involved in the development of any procedures for responding to chemical

9 As elaborated at the top of preceding data sheet.

10 At 255 (emphasis added).

11 At 258.

> incidents. .... Corporate plans and policies should be developed, approved, and implemented long before any need for such arises.

Although a minor criticism, surely Vincoli could have treated the latter topic generically — in considerably more detail — one time, in one place.

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Should potential users of such references buy one, both or neither of these works? The last option is beyond the scope of this review, but both seem potentially quite useful for not only their intended audience but others as well. Between the two, however, I find **Risk Management for Hazardous Chemicals** more compelling notwithstanding the higher price. By themselves, Cooper's total omission of formaldehyde and his characterization of benzene as merely a *suspected* human carcinogen seem inappropriate enough to make one have general doubts. Moreover, while Cooper's discussions are generally longer than Vincoli's, his tables are not nearly as helpful — and the lack of bibliographic content is conspicuous.

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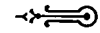

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