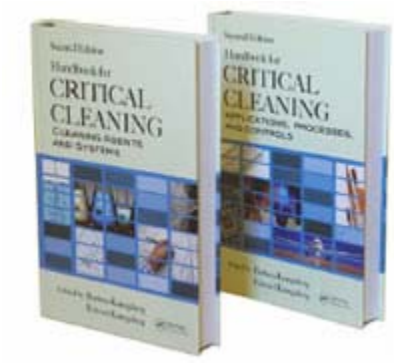
CONTROLLED Environments® MAGAZINE
CONTAMINATION CONTROL FOR LIFE SCIENCES AND MICROELECTRONICS

Point of View - Book Review

By Darren L. Williams, Ph.D.



Kanegsberg and Kanegsberg, Handbook for Critical Cleaning: Book I: Cleaning Agents and Systems & Book II: Applications, Processes, and Controls

Barbara and Ed Kanegsberg (a.k.a. "The Cleaning Lady and the Rocket Scientist") have produced an excellent resource for the manufacturer and for those research - ers and consultants like myself who support the manufacturers.

My involvement in the cleaning community over the past decade has been focused mostly on solvent substitution, solvent blending, and cleaning verification. Although I could lecture for hours on the topics, I know there are many areas where I am in need of clear, concise, and accurate reference material. This two-volume encyclopedia of cleaning has filled this need almost completely.

This Handbook's strongest suit is the careful presentation of the Kanegsbergs' philosophy of process development and improvement. This is NOT an edited handbook that contains a collection of contributed chapters with a loosely-related, "sticky-note" introduction and conclusion. It is clear that this handbook was sincerely produced to benefit the manufacturing community and society in general through responsible process evaluation and improvement. For evidence, see the two-page discourse on "*How Not to Clean Critically with Household Products*," which is appropriately followed by a summary of "*How to Choose a Cleaning Agent.*"

The Second Edition contains new material on non chemical cleaning processes (i.e. CO_2, steam, and plasma). Two new chapters are included that address ultrasonic metrics, addressing the question, "*How do I select an ultrasonic process that maximizes cleaning and minimizes damage*." Also, five chapters are provided that discuss cleanroom design, operation, monitoring, and behavior. These chapters contain detailed descriptions, highly illustrated examples, and a practical approach that is immediately useful.

Digging into the specifics, I was initially concerned by an emphasis on the one-dimensional Kauri-butanol (KB) value as a measure of solvency, since I am an avid user of the Hansen solubility parameters (HSP) as a basis for understanding solvency. But my concern was allayed by the quote: "Comparing the KB number with the Hansen system is somewhat analogous to comparing a black and white TV of the 1950s with a current full-

color, high-definition color broadcast." This is a great example of the clear and humorous writing style of the authors.

In line with my interests in HSP, I was impressed with John Burke's chapter "Solvents and Solubility." His chronology of the development of the Hansen system is very helpful. He presents a very nice example of the deficiencies in the one-dimensional Hildebrand solubility parameter.

In closing, I greatly appreciated the chapter "*Blunders, Disasters, Horror Stories, and Mistakes You Can Avoid.*" If Oscar Wilde was right that "Experience is simply the name we give our mistakes," then it behooves us to learn as much as we can from the "experience" of others! Some will see this chapter as a humorous interlude, but I think they miss the point. We often assume success in our endeavors. This chapter shows that assuming success can have extremely negative consequences to our businesses, our careers, and by extension our lives, and the lives of our families.

Likewise, we can learn a lot by the experience and success of Barbara and Ed Kanegsberg, as they have produced a very useful resource in these two handbooks.

Darren L. Williams, Ph.D*. is an Associate Professor of Physical Chemistry at Sam Houston State University. He has over a decade of experience in cleaning verification and solvent substitution in addition to his work in spectroscopy and molecular modeling. Chemistry Department, Sam Houston State University, 1003 Bowers Blvd, Huntsville, TX 77341-2117; (936)294-1529; Williams@shsu.edu; www.shsu.edu/~chm_dlw*