

Active Library on Corrosion 2.0[†]

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The Active Library on Corrosion (ALC) has always contained a wealth of corrosion related information, with complex hyperlinks that allowed a user to move from one item to a related item across various types of information resources. In version 2.0, W. F. Bogaerts and co-editors K. S. Agema, V. T. Thuy, and J. H. Zheng have greatly expanded that content, updating editions and adding new books and other new resources. ALC is published by Elsevier Science, in conjunction with NACE International.

I was secretly hoping that the ALC 2.0 upgrade would also incorporate Web-based technology, allowing the scientist to use a standard Web browser to access the data. This collection, with its extensive hyperlinking, seems perfect for such an approach. Not to mention, most users today would rather employ a standard Web browser than have to learn a unique software interface.

Alas, in this regard I was disappointed. The publishers have once again delivered a proprietary software interface, which is naturally different from all other reference books and encyclopedias on the market. There are numerous icons to learn, a powerful yet unforgiving search engine with which to contend, six different context sensitive cursors, and an array of lists, including bookmark lists, hit lists, and history lists, that made navigating this product somewhat confusing.

That said, overall this CD-ROM can still be an excellent tool for corrosion engineers. It will especially come in handy if they are troubleshooting or consulting away from the office, where they typically have no library or personal reference materials to consult. The product is designed to run under Microsoft Windows '95, '98, 3.1 or NT4 on IBM compatible PCs. Minimum requirements include a 486 processor, 8 MB of RAM, a compatible mouse, a color monitor, a hard disk with at least 15 MB free disk space, a fast CD-ROM drive, and an accelerated video card. The product supports high screen resolutions (800 × 600 and up), which you will definitely need to fully utilize the case history photos.

GENERAL NAVIGATION AND COLLECTION CONTENT

ALC 2.0 now covers 11 books, two corrosion databases, selections from three journals (two in full text format), and three document collections. I would recommend first becoming familiar with the various collections into which this CD-ROM is divided, their content, and icon. The first screen, which appears when launching the disk, is a colorful splash screen that you must click through to get to the desktop. The desktop is a very attractive visual, with large icons

representing each of the information collections. These same icons are also present on the toolbar. In addition, both the desktop and the toolbar include a FULL TEXT SEARCH icon, which launches the search engine. If you ever get lost in a thread, you can always click back to the appropriate collection icon on the toolbar or click the signpost icon on the tool bar to take you back to the desktop.

SPECIFIC COLLECTIONS

Books and Standards. The Books and Standards section, represented by an icon of three upright books, covers the following materials

Corrosion, 3rd edition (L. L. Shrier, et al.)
Corrosion Guide, 2nd edition (E. Rabald)
Corrosion Atlas, 3rd edition (679 documented and illustrated cases compiled by E. D. D. During)

and the following NACE International books

Fundamentals of Designing for Corrosion Control: A Corrosion Aid for the Designer (R. J. Landrum)
Cathodic Protection, 2nd edition (J. H. Morgan)
Corrosion Prevention by Protective Coatings (C. C. Munger)
Corrosion Inhibitors (C. C. Nathan, editor)
Corrosion Engineer's Reference Book, 2nd edition (R. S. Treseder, et al., editors)
Materials Performance in Waste Incineration Systems (G. Y. Lai and G. Sorrell)
A Practical Manual on Microbiologically Influenced Corrosion (G. Kobrin, editor)
Materials Selection for Refineries and Associated Facilities (R. A. White and E. F. Ehmke)
NACE International Book of Standards (1995 and 1996 updates)

Most of the books look to be reproductions of the hard copy with very little linking within the text itself. References can be consulted by clicking on the reference number, and figures can be accessed by clicking on the figure number. Most of the books also have an index available, in addition to the Table of Contents. Their full text can be searched using the FULL TEXT SEARCH OPTION described later.

The majority of the books have each portion of each chapter broken into a separate section. So, to read from one section to another you must select the next section from the Table of Contents. This is not a problem with the NACE standards, where each standard is one document. In some of the reference books subsections are collapsed and appear only as a subsection number. When you click on them the text expands. I was unable to find a way to expand all of the subsections at one time for easy reading.

[†] Active Library on Corrosion 2.0 is available from Elsevier Science: Direct Marketing Department, P.O. Box 880, 1000 AW Amsterdam, The Netherlands (www address: <http://www.elsevier.nl/locate/alc>). The single user cost is \$2845. A single site network version is available for \$4310.50.

The *Corrosion Engineer's Reference Book* did employ a nice feature whereby one could scroll through entries in a long table that was more than one screen-worth, while keeping the header in place. The most interlinked book is the *Corrosion Atlas*, which can be read as a book, but which one can also access by specifying system parameters (see Corrosion Atlas section below).

Journals. The journals collection, whose icon is a stack of journals, consists solely of

NACE journals: *Materials Performance* and *Corrosion*—full text for 1994 volumes

Elsevier journal: *Corrosion Science*—abstracts for the years 1992–1996

This addition seems like advertising at best. A one-year run of any journal just is not that valuable, whatever the title. A four-year run of abstracts is little better. If you really needed to consult the journal literature, you would be much better off consulting a complete database such as Cambridge Scientific's CORROSION ABSTRACTS.

Glossary. In the Glossary section, indicated by the icon AZ, the CD-ROM authors have pulled together a listing of corrosion related terms appearing in ALC and supplied brief definitions. Some entries are linked to other parts of ALC for further information.

Corrosion Atlas. As noted above, although one can approach this as a book, one can also enter via the ATLAS icon. In this case, you are presented with a form into which you can enter three parameters: MATERIAL (with 13 different options at the outset), SYSTEM (containing 25 different items), and the corrosion PHENOMENON involved (44 options at the outset). Granted, not all combinations contain data, but once you find a candidate, you can view the record, which includes both the case history information as well as one or more photos, each of which can be blown up to about half-screen. You will want that high-resolution screen to get the most from these photos. The case histories also feed into the Reference Cube described below.

Reference Cube. The corrosion Reference Cube, reached by selecting the cube icon, allows you to select the material, the environment, and the corrosion type, although often there is no data for a specific combination of these three parameters. You make these selections by clicking along the three axes of a cube, where each possible parameter entry is noted along the axis. So, for example, you may select crevice corrosion of austenitic steel in seawater. The data feeding into the cube was compiled by the authors Bogaerts and Agema from different sources, including the journal literature, extensive portions of the NACE book *Process Industries Corrosion - The Theory and Practice*, edited by B. J. Moniz and W. I. Pollock, and data from the authors. Once you have chosen the parameters, you click on view, whereby you are taken to a short write-up, in our case, to a section entitled "Crevice corrosion of stainless steel in salt water and seawater". In many cases the records will link to a case history and photo from the *Corrosion Atlas*.

Databases. The two databases produced by NACE

NACE COR.SUR and COR.SUR 2 materials selection databases

describe metal and nonmetal compatibility respectively with various corrosives. The data is delivered in the form of a

colored chart, with percent concentration along the *x*-axis and temperature along the *y*-axis. Areas of total compatibility are listed in green, with areas of known incompatibility highlighted in various colors from yellow to red, depending on the severity of the corrosion. Due to lack of data, most of these graphs have large areas of unknown effects, and perhaps more importantly, the concentration range runs from 10 to 100%. Many of the scenarios our engineers deal with fall at levels way below 10%, making this data less useful.

Corrosion Control Section. A special section

Corrosion Control, by W. F. Bogaerts and K. S. Agema

was written specifically for this product and has numerous links to the other reference sources on this disk. The content seems quite general, and is more of a primer on corrosion types, preventative measures, materials selection, etc.

OTHER FEATURES

Full Text Search Engine. So far we have discussed browsing the collection by source or using the reference cube or the corrosion atlas search features. ALC also includes the dtSearch search engine, which allows you to search across all of the collections (except the glossary or the COR.SUR databases) or just a few. The search engine, though powerful, does not allow for any natural language query. Users accustomed to the Web, where they can enter a series of terms or even a sentence, will have to adjust their strategies to include Boolean operators. The default in a search statement assumes adjacency rather than AND or OR logic. The advanced search mode allows for adjacency, stemming and phonetic searching. You can also set the Fuzzy Level, which at its fuzziest retrieves "waals" and "wagner" when you enter the term "water". I guess this explains why the terms "coated", "coupon", and "concern" appeared as hit terms when I searched the term "copper". In the Advanced Search mode, you can review the search terms retrieved by opening up the "Word List" tab. One can often get amusing false drops. When I set phonetic searching on and entered the term *fenomenon*, I did not retrieve *phenomenon*, but did find reference to *Fe-Ni-Mn-N*.

The Lists. The lists are key in navigating around ALC. After you have done a search, each of the answers becomes part of your *HIT* list, and you can move from hit to hit by activating the hit list box on your toolbar. Your *HISTORY* list tracks where you have been since you started. So if you ran a search, looked at hit 1, followed two hyperlinks from hit 1, viewed hit 2, and then carried out a second search, you would be able to navigate back to any one of those screens you have viewed. The *BOOKMARK* list represents a set of links to records you want for future reference. You must first open and name a bookmark file, after which you can save links to specific pages of information. You could use it to save a specific search's results or to collect some favorite, often used reference pages.

Notes Editor. The last unique toolbar button is the paper clip, which launches the sticky notes editor. This allows you to annotate the current open record. Next time you or anyone else consults this page of information, a piece of paper will appear in the paper clip icon. Click on the icon, and your comments will appear.

OTHER ISSUES

Integration of Sources. It is quite clear that various different methods have been used to generate these various collections, and little effort has been made to make all of the collections consistent. In addition, the process used to convert the books to electronic format has introduced some errors or problems. I ran across at least a couple of cases where chemical formulas were incorrect or misleading. In one case, an oxygen symbol was replaced by the number zero. In another case, the formula $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ was split across lines between the oxygen and the subscript 4. In a third instance, I could not see a very long formula that had a scroll box in its vertical entirety, although it printed out correctly. The context sensitive cursors can be misleading. In some collections, the pop-up cursor (which looks like a rotated asterisk) represents references while in others it designates a glossary definition. Sometime boldface indicates an area that expands, sometimes it indicates that you can link to further information, and sometimes it just is bold for emphasis.

Pricing. Clearly this product is meant primarily for an individual corrosion engineer. Some of the product literature even notes this intent. The bookmarking and annotating features will be most useful at one's own desk and do not lend themselves to common computer stations. From the

documentation, I understand that the network version requires specific files to be copied to all workstations that plan on accessing the system, which is not practical. Given the target audience, I am concerned about the price. Our corrosion scientists have all these books, standards, and journal literature available to them, but I would venture few to none actually have their own personal copies of the entire collection, in part because of the cost. At almost \$3000 per copy for ALC, I think the price would deter many purchases, despite its useful content.

All in all, this CD contains an impressive, extensive compilation of important reference materials, which are "must have" materials for a corrosion engineer or related scientist. Realize that you will have to invest a fair amount of time to actually read the manual and familiarize yourself with the structure and idiosyncrasies of the system. But if you are willing to take the time and financially able to support the purchase, then ALC should be a valuable addition to your desktop information library.

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