

Review of **CORROSION RESISTANCE TABLES: Metals, Plastics, Nonmetals and Rubbers**, 2nd ed., by Philip A. Schweitzer, P. E. Published by Marcel Dekker, Inc., (New York, 1986). 1256 pages. \$145.00 U.S. and Canada; \$174.00 all other countries.

**REVIEWED BY O. F. DEVEREUX<sup>1</sup>**

This compendious tabulation of corrosion data is primarily directed to the engineer or consultant responsible for materials specification. It consists of a set of charts, each comprising two pages and representing service data in a single environment over the temperature range 60–460°F. A broad range of environments is represented; some are very specific, e.g., “dichlorobenzene” or “acetic acid, 50%”; others are not clearly specified, e.g., “green liquor” and “fish solubles,” or broadly specified, e.g., “gasoline, leaded.” Unless otherwise noted, the environment, if liquid, is pure; if solid, it is the saturated aqueous solution. In some cases this leaves room for ambiguity, for example ammonium thiocyanate is tabulated without qualifying note, however, it melts at 149.6°C

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(301.3°F) and decomposes at 170°C (338°F). Does the table refer to the saturated aqueous solution below the melting point, the liquid above that point, and the decomposition products above 170°C, or to the saturated solution over the entire range of 60–460°F, or . . . ?

The material list is relatively restricted but representative. There are 20 metals and alloys, 25 plastics, 13 rubbers, and two “nonmetallics:” borosilicate glass and carbon. The metals and alloys include aluminum, copper-base alloys, steel and 2 stainless alloys, lead, nickel alloys including representative Hastelloys, tantalum, titanium and zirconium. Plastics include acrylics, epoxys, phenolics, fluorocarbons, polyesters, polystyrene, polyethylene and PVC. “Rubbers” include butyl, fluoro elastomers, hard rubber, natural rubber, neoprene, polybutadiene, silicone and polyurethane. For the metals corrosion behavior is categorized as < 2 mpy (mils penetration per year), < 20 mpy, < 50 mpy, or > 50 mpy, while nonmetals, plastics and rubbers are generally categorized as resistant or unsatisfactory. Not all materials are categorized in each environment.

This is clearly a valuable volume for design engineers and failure analysts, possibly even indispensable. However, it is restricted to somewhat generic material classifications in environments which comprise organic liquids or aqueous solutions, thus excluding gaseous and molten corrodents.