

CHROMIUM (VI) HANDBOOK, by the Independent Environmental Technical Evaluation Group (IETEG)
Reviewed by Jay Lehr, The Heartland Institute

It is entirely possible that Erin Brokovich and her claims against Pacific Gas & Electric served as the prime motivation for this handbook, a compilation of what is probably the most comprehensive accumulation of information on a single chemical element ever produced. Given the level of misinformation on chromium (VI) [Cr (VI)], this book was compiled by an eclectic team of experts to help facilitate a rational approach to the assessment and remediation of Cr (VI) in the environment.

Because some forms of Cr in nature are toxic, Cr creates numerous environmental problems as a result of waste products from industrial processes. It has been generally assumed that Cr(VI) in ground water is anthropogenic (manmade) but more recent studies have made it clear that it occurs naturally as a result of leaching from serpentinite bedrock and likely from other Cr containing minerals. Unfortunately, the Erin Brokovich exposé has led some governments to aim at unrealistically low Cr concentration, often less than natural background concentration.

Every element of the research undertaken to create an encyclopedic discourse for Cr in this book has been achieved with mind numbing regularity. An exhaustive discussion of Cr (VI) chemistry, geochemistry, and geology was accomplished by William Motzer. Transport and fate was handled similarly by Frederick Stanin. And, Jacques Guertin covered the toxicity and health effects from exposure to Cr.

A team of authors led by James Jacobs (a GRA Board Member) explained all the complexity of sampling and chemical analysis for Cr (VI) occurrence, including detailed explanations on the manner in which various drilling techniques must be carried out in order to obtain representative samples. These include wire line, cone penetration testing and sensor probes among others along with the more common hollow stem auger, cable tool, and rotary drilling. Concurrently, in the area of chemical analysis, they comprehensively cover some of the more exotic and modern techniques.

The chapter on treatment technologies is complete in explaining every potential methodology for removing Cr (VI) from water sources. Sorption processes, equilibration between solid and dissolved forms of Cr, metabolic and nonmetabolic redox reactions, phytoremediation, phytostabilization, and rhizofiltration, to name a few, are all covered in this book.

These are but a small sample of the amazing accumulation of information a reader will find on Cr in this book. If your professional work deals in any way with Cr, you must own this book. It is well written, well edited, and superbly organized.

Jay Lehr, Ph.D., is Senior Scientist with the Heartland Institute, 19 South LaSalle Street, Chicago, IL 60603

Editors Note: IETEG includes a number of past and current GRA Directors and San Francisco Branch officers and members, including editors Jacques Guertin, James Jacobs, and Cynthia P Avakian, as well as contributing authors David Abbott, Fred Stanin, and Martin Steinpress. It may be purchased at www.crcpress.com.