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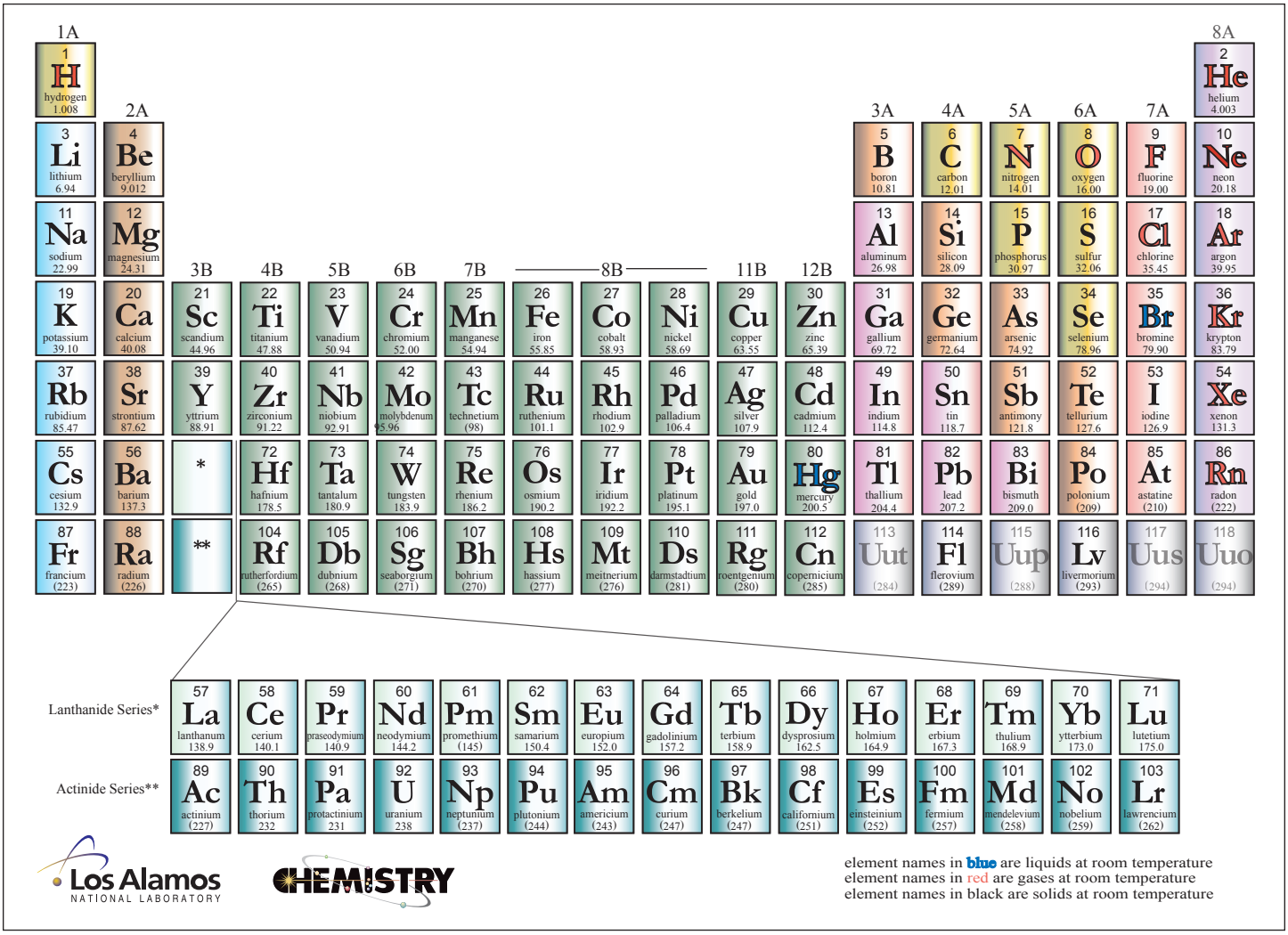
Critical Mineral Resources of the United States—Economic and Environmental Geology and Prospects for Future Supply

Professional Paper 1802

U.S. Department of the Interior
U.S. Geological Survey

Periodic Table of Elements



Modified from Los Alamos National Laboratory Chemistry Division; available at http://periodic.lanl.gov/images/periodictable.pdf.

Front cover (clockwise starting at top left).

Dry Lake Wind Power Project. This 63-megawatt-capacity facility in Arizona was the first utility-scale power project. The large wind turbines use generators that contain strong permanent magnets composed of neodymium-iron-boron. Photograph courtesy of Iberdrola Renewables, Inc., NREL 16701.

U.S. Air Force F-35 Lightning II Joint Strike Fighter. This and many other aerospace vehicles rely on electrical and mechanical components made of beryllium alloys. Photograph courtesy of the U.S. Air Force.

Flat-panel display and touchscreen devices. The screens are coated with indium-tin oxide, for which there are few chemical substitutes. Photograph by C.N. Mercer, U.S. Geological Survey.

Solar photovoltaic cells. This 2-megawatt ground-mounted array occupies the site of a former landfill at Fort Carson, Colorado. Tellurium is a critical component for the development of efficient thin-film photovoltaic cells that are needed for the production of electricity from sunlight. Photograph courtesy of the U.S. Department of Energy Western Area Power Administration.

Back cover. A handful of stibnite, which is the primary ore mineral for antimony. Antimony is widely used in plastics, rubbers, paints, and textiles, including industrial safety suits and some children's clothing, to make them resistant to the spread of flames. Photograph by Niki Wintzer, U.S. Geological Survey.

Front and back covers background image. Lithium-brine evaporating ponds at Clayton Valley, Nevada. Lithium has many uses, the most prominent being in batteries for cell phones, laptop computers, and electric and hybrid vehicles. Photograph by Doc Searls/CC-BY-2.0, http://commons.wikimedia.org/wiki/File:Chemetall_Foote_Lithium_Operation.jpg.

Prepared by the USGS Science Publishing Network
Reston Publishing Service Center
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Schulz and others, eds.—**Critical Mineral Resources of the United States—Economic and Environmental Geology and Prospects for Future Supply**—Professional Paper 1802

ISBN 978-1-4113-3991-0

ISSN 1044-9612 (print)
ISSN 2330-7102 (online)
http://dx.doi.org/10.3133/pp1802

Printed on recycled paper