

Aluminum Encyclopedia Article

Aluminum

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Aluminum Encyclopedia Article.....	1
Contents.....	2
Aluminum.....	3

Aluminum

Aluminum, a light metal, comprises about 8% of the earth's crust, ranking as the third-most abundant element after oxygen (47%) and silicon (28%). Virtually all environmental aluminum is present in mineral forms that are almost insoluble in water, and therefore not available for uptake by organisms. Most common among these forms of aluminum are various aluminosilicate minerals, aluminum clays and sesquioxides, and aluminum **phosphates**.

However, aluminum can also occur as chemical **species** that are available for biological uptake, sometimes causing toxicity. In general, bio-available aluminum is present in various water-soluble, ionic or organically complexed chemical species. Water-soluble concentrations of aluminum are largest in acidic environments, where toxicity to nonadapted plants and animals can be caused by exposure to Al^{3+} and $\text{Al}(\text{OH})^{2+}$ ions, and in alkaline environments, where $\text{Al}(\text{OH})$

4 is most prominent. Organically bound, water-soluble forms of aluminum, such as complexes with fulvic or humic acids, are much less toxic than ionic species. Aluminum is often considered to be the most toxic chemical factor in acidic soils and aquatic habitats.