



Urban Mining: Characterization and Recycling of Solid Wastes

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As the world moves toward zero waste and low-carbon economy, awareness of urban mining as well as concerns about environmental effects is increasing. Urban mining explores the mineral resource and economic value of the waste streams generated in urban spaces and has been playing a significant role in the planning and designing of sustainable cities. In this special topic *JOM* presents papers that bring out comprehensive information on the promotion of resource conservation through recycling, reuse, and recovery of secondary resources from solid wastes and safeguarding of the environment.

This special topic features a paper titled “Preparation of Pyrolytic Carbon from Waste Tires for Methylene Blue Adsorption” by Yuzhe Zhang et al. Waste tires are a challenging source of solid waste for recycling due to the large volume produced, the durability of the tires, and the components in the tire that are ecologically problematic. The authors proposed a new process of preparing pyrolytic carbon from waste tires to treat methylene blue dye (MB). Treating waste by the application of other wastes is a resource-saving pollution control strategy. Previous methylene blue (MB) treatment methods are either expensive or have high energy demands. In this study, two pollution treatments were combined via carbon pyrolysis. Waste tire pyrolysis by microwave irradiation produced pyrolytic carbon, which was then used to adsorb MB. The results showed that recycled pyrolytic carbon benefits the MB adsorption reaction as a spontaneous endothermic reaction. The reported recycling processes have low cost and low energy requirements compared with previous studies. Successful

implementation of these processes will not only enable high-value materials to be reused but also bring both economic and environmental benefits.

Another interesting paper included in this special topic encompasses the decolorization of rapeseed oil using montmorillonite authored by Mengna Yang et al. This paper describes a low-temperature atmospheric calcination technology for solving the current environmental issues associated with activated clay production. In this study, the structural alteration of montmorillonite during the production of activated clay was investigated with this new technology. The results revealed that the increase in temperature aggravates the destruction of the octahedral sheets in montmorillonite laminates because of the continuous dissolution of cations in the sheets, with relatively stable tetrahedral sheets. Activated montmorillonite layers became curled and stacked in disorder, which was different from those in the original. The maximum acidity of 230 mmol/kg was achieved at an optimum acidity temperature of 200°C. Under this condition, the specific surface area and total pore volume increased from 78.4 m²/g to 226 m²/g and from 0.107 cm³/g to 0.318 cm³/g, respectively. With the improvement in the decolorization ability of the clay, the absorbance of the rapeseed oil decreased to 0.867 from 4.070.

Recycling valuable metals from spent batteries has been attracting increasing attention among researchers because of the rapid increase of electronic product consumption. Recycling of valuable metals from spent lithium-ion batteries (LIBs) appears inevitable for both environmental protection and resource recovery. In the study by Guilan Gao et al., an efficient hydrometallurgical leaching of Co and Li from cathode materials of spent LIBs is explored using a citric acid/sodium thiosulfate (Na₂S₂O₃) system. Under optimized leaching conditions, approximately 96% of Co and 99% of Li can be recycled from the spent LIBs by this system. Furthermore, pure sulfur can be obtained as a by-product during the leaching process, and SO₂ produced during the reaction is easily collected as

Mingming Zhang and Bowen Li are guest editors for the topic Urban Mining: Characterization and Recycling of Solid Wastes, Part II in this issue. The topic is sponsored by the TMS Materials Characterization Committee (EPM) and the Recycling and Environmental Technologies Committee (EPM & LMD).

Mining Urban Wastes The Potential For Recycling Worldwatch Paper 76

Leo Panitch, Colin Leys



Mining Urban Wastes The Potential For Recycling Worldwatch Paper 76:

Recycling and the Politics of Urban Waste Matthew Gandy, 2014-06-03 The affluence of western society has given rise to unprecedented quantities of waste presenting one of the most intractable environmental problems for contemporary society This book examines recycling and municipal waste management in three major cities London New York and Hamburg A range of political and economic issues are examined to illustrate how any reduction in the size of the waste stream in order to achieve more equitable and environmentally sustainable patterns of resource use is incompatible with the current emphasis in the use of the market for environmental protection The case studies show how contrary to the hopes of many environmentalists and policy makers municipal waste management is moving steadily towards the profitable option of incineration with energy recovery rather than the recycling of materials or waste reduction at source The evidence suggests that the achievement of a more sustainable pattern of recycling and waste management policy would demand a fundamental change in public policy to give government a more active role in environmental protection *Saving the Planet* Lester

Russell Brown, Christopher Flavin, Sandra Postel, 1991 Describes an environmental research team's plan for a global economy

Facing America's Trash United States. Congress. Office of Technology Assessment, 1989 *Civilization's Crisis: A Set Of Linked Challenges* John Scales Avery, 2017-04-20 Modern civilization faces a broad spectrum of daunting problems but rational solutions are available for them all This book explores the following issues 1 Threats to the environment and climate change 2 a growing population and vanishing resources 3 the global food and refugee crisis 4 intolerable economic inequality 5 the threat of nuclear war 6 the military industrial complex and 7 limits to growth These problems are closely interlinked and their possible solutions are discussed in this book *Bad Harvest* Nigel Dudley, Jean-Paul Jeanrenaud, Francis

Sullivan, 2014-06-03 The world's forests are disappearing at an alarming rate and with disastrous consequences Demand for wood and paper products ranks high amongst the causes of deforestation and forest degradation and is now the major cause of loss in those forests richest in wildlife There is a great deal to be done to improve the timber industry before our forests are safely and sustainably managed *Bad Harvest* presents an incisive account of the role that the timber trade has played in the loss and degradation of forests around the world It examines the environmental consequences of the trade on boreal temporal and tropical regions and its impacts for local people working and living in the forests It also looks at the changing nature of the trade and assesses current national and international initiatives to address the impacts of deforestation Finally the authors show how things could be improved in the future by presenting a new strategy for sustainable forest management Based on 15 years of extensive research particularly work carried out by the World Wide Fund for Nature *Bad Harvest* is essential reading on the subject not only for environmentalists but also for those in the timber trade seeking to improve the management and reputation of their product **Municipal Waste Disposal Crisis** United States. Congress.

House. Committee on Energy and Commerce. Subcommittee on Transportation, Tourism, and Hazardous Materials, 1987

State of the World Lester Russell Brown,1993 Health Hazards Posed in the Generation, Handling, and Disposal of Infectious Wastes United States. Congress. House. Committee on Small Business. Subcommittee on Regulation and Business Opportunities,1989 *Aquatic Pollution* Edward A. Laws,2000-09-07 A clear straightforward presentation of concepts and issues in aquatic pollution This comprehensive introductory text presents a systematic study of pollution in oceans lakes streams and underground aquifers In a clear straightforward style that is easily accessible to nonscientists it describes the sources features and effects of thirteen different types of aquatic pollution Fully updated to reflect current understanding and recent developments this Third Edition of *Aquatic Pollution* covers every aspect of pollution associated with urban runoff acid rain sewage disposal pesticides oil spills nutrient loading and more Case studies of major pollution sites such as Lake Erie Three Mile Island and the Rocky Mountain Arsenal help to illustrate points made in the general discussion Important features of this new edition include Updated discussions of nonpoint source pollution industrial pollution thermal pollution pathogens metals plastics and more New case studies of Chesapeake Bay and the Exxon Valdez Beginning of chapter outlines End of chapter study questions New special section on units of measurement Four chapters on the fundamentals of ecology and toxicology *Aquatic Pollution* Third Edition is a first rate teaching and learning tool for courses in environmental science zoology oceanography biology and civil or sanitary engineering It is also an excellent primer for policymakers and activists focused on environmental issues **Energy, Resources, And The Long-term Future** John Scales Avery,2007-07-26 The world is rapidly approaching the end of the fossil fuel era This timely book reviews the historical background for this crisis and provides a comprehensive discussion of its important aspects It contrasts the Utopian writings of Condorcet Godwin and Adam Smith with the more pessimistic views of Malthus and Ricardo It then discusses the characteristics of mainstream industrialism as well as the ecological counterculture The final chapters of the book study the present position regarding both non renewable and renewable resources and the problem of reducing the economic trauma that will result from the depletion of fossil fuels especially the future impact of high petroleum prices on agriculture in relation to global population growth Readers will gain an understanding of the dangers and opportunities of future developments in science as well as the steps that must be taken to achieve a stable sustainable global society **POPULATION AND THE ENVIRONMENT** John Scales Avery,2018-07-26 This book describes the steps needed to stabilize global population in order to avoid an environmental catastrophe It also presents a history of the struggle for women s rights and for their representation in politics science literature music and the visual arts **Gone Tomorrow** Heather Rogers,2013-03-05 A galvanizing exposé of America s trash problem from plastic in the ocean to wasteful packaging bogus recycling and flawed landfills and incinerators Booklist starred review Eat a take out meal buy a pair of shoes or read a newspaper and you re soon faced with a bewildering amount of garbage The United States is the planet s number one producer of trash Each American throws out 4 5 pounds daily But garbage is also a global problem Today the Pacific Ocean contains six times more plastic waste than zooplankton How did we

end up with this much rubbish and where does it all go Journalist and filmmaker Heather Rogers answers these questions by taking readers on a grisly and fascinating tour through the underworld of garbage *Gone Tomorrow* excavates the history of rubbish handling from the nineteenth century to the present pinpointing the roots of today's waste addicted society With a lively authorial voice Rogers draws connections between modern industrial production consumer culture and our throwaway lifestyle New York Press She also investigates the politics of recycling and the export of trash to poor countries while offering a potent argument for change A clear thinking and peppery writer Rogers presents a galvanizing exposé of how we became the planet's trash monsters *Gone Tomorrow* details everything that is wrong with today's wasteful packaging bogus recycling and flawed landfills and incinerators Rogers exhibits black belt precision Booklist starred review **Rigid Container**

Recycling Kimberly G. Copperthite, 1989 Coming to Terms with Nature Leo Panitch, Colin Leys, 2006-11 Can capitalism come to terms with the environment How do market forces impact on the biosphere What is the significance of the impasse over the Kyoto protocol How far has socialist thought developed to help us understand the environmental dilemma Has it got answers Can capitalism come to terms with the environment How do market forces impact on the biosphere What is the significance of the impasse over the Kyoto protocol How far has socialist thought developed to help us understand the environmental dilemma Has it answers How can class and environmental politics be brought together What are the shortcomings Green parties and green commerce **Wrapped in Plastic** Jeanne Wirka, 1989 Also includes Appendix A from book Packaging resins fact sheets **Moving to Markets in Environmental Regulation** Jody Freeman, Charles D. Kolstad, 2007 Publisher description **Summary of State Government Finances in ...**, 1942 *The Politics of Garbage* Lawrence S. Luton, 2010-11-23 Increased environmental awareness more demands on local governments a newly invigorated citizen activism and a decaying and overburdened infrastructure have made taking care of our garbage one of the major policy making challenges facing local communities Luton uses the case study of Spokane WA to analyze the public administration and socio political context of solid waste policy making Luton's thorough exploration of Spokane's experience as opens a window onto contemporary issues of solid waste management as well as the complex social and political environment in which public administrators must operate His integration of systems theory in the analysis adds to the book's value as a teaching tool for courses on policy making urban planning public administration and the environment He examines the complex combination of ecological political social and relational dynamics that affect such policies providing insight into inter governmental public policy making *Energy Investments and the Environment* Corazon M. Siddayao, Lisa A. Griffin, 1993-01-01 This volume shows how to develop new energy sources in ways that are less damaging to the environment than previous practices have been Contributors to the compilation discuss how developing countries can identify the most important environmental issues for their energy investments measure the costs and benefits including environmental considerations of sustainable energy development incorporate macroeconomic and institutional issues into energy planning

The editors highlight the institutional barriers to energy development planning that takes into consideration the environmental effects. They outline typical environmental impacts of renewable energy systems and provide an overview of applicable technologies. The report also discusses environmental policy in the production and consumption of oil and gas with a review of pollution standards and control. And one section explores issues concerning greenhouse gases such as how to apply controls fairly. These technical materials are a product of the program on energy policy and planning of the World Bank's Economic Development Institute. This volume will help policymakers and planners identify environmental issues in energy investments.

Audubon House National Audubon Society, Croxton Collaborative, Architects, 1994-04-06. It saves its owners a projected 100 000 dollars annually in operating expenses and supports an extraordinarily practical healthy and handsome office environment.

The book delves into Mining Urban Wastes The Potential For Recycling Worldwatch Paper 76. Mining Urban Wastes The Potential For Recycling Worldwatch Paper 76 is an essential topic that must be grasped by everyone, ranging from students and scholars to the general public. The book will furnish comprehensive and in-depth insights into Mining Urban Wastes The Potential For Recycling Worldwatch Paper 76, encompassing both the fundamentals and more intricate discussions.

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- This book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Mining Urban Wastes The Potential For Recycling Worldwatch Paper 76.

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