

Seventh International Conference on Waste Management and Technology 2012

(ICWMT 7)

Procedia Environmental Sciences Volume 16

**Beijing, China
5-7 September 2012**

Editors:

Jiming Hao

**ISBN: 978-1-62748-539-5
ISSN: 1878-0296**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com



ELSEVIER

Available online at www.sciencedirect.com

SciVerse ScienceDirect

Procedia Environmental Sciences 16 (2012) iii–vi

Procedia

Environmental Sciences

Contents

Preface	1
Determining the Biodegradability of Leachate Through XAD-8 Adsorption Y. Zhang, J. Liu, R. Li, X. Zeng, Y. Xue, J. Liu, Y. Nie	3
Development of the Philippines National Solid Waste Management Strategy 2012-2016 V. Acosta, J. Paul, C. Lao, E. Aguinaldo, M.D.C. Valdez	9
Effects of Conditioners on Sulfonamides Degradation during the Aerobic Composting of Animal Manures J. Qiu, J. He, Q. Liu, Z. Guo, D. He, G. Wu, Z. Xu	17
An Analytical Study on the Resource Recycling Potentials of Urban and Rural Domestic Waste in China C. Yang, M. Yang, Q. Yu	25
Study on Dry-basis Separation Test for Urban Residential Waste C. Yang, M. Yang, Q. Yu	34
Comparative Analysis of Scrap Car Recycling Management Policies K. Yue	44
Distribution of Heavy Metals in Core Sediments from Baihua Lake Y. Wang, J. Hu, K. Xiong, X. Huang, S. Duan	51
Effect of Spent Air Reusing (SAR) on Maturity and Greenhouse Gas Emissions during Municipal Solid Waste (MSW) Composting—with different Pile Height H. Zhang, C. Li, G. Li, B. Zang, Q. Yang	59
Functional Materials Development from Kitchen Waste F. Zhang, Q. Wu	70
Collaborative Emission Reduction of Greenhouse Gas Emissions and Municipal Solid Waste (msw) Management—Case Study of Tianjin Y. Wang, Y. He, B. Yan, W. Ma, M. Han	75
Influence of Temperature on Hydrolysis Acidification of Food Waste M. He, Y. Sun, D. Zou, H. Yuan, B. Zhu, X. Li, Y. Pang	85
The Study on the Ecological Footprint of Rural Solid Waste Disposal-example in Yuhong District of Shenyang M. Tian, J. Gao, Z. Zheng, Z. Yang	95
Essential Role of Trace Elements in Continuous Anaerobic Digestion of Food Waste L. Zhang, W. Ouyang, A. Lia	102
Evaluation Indexes and Methods for Water Quality in Ocean Dumping Areas D. Yang, L. Zheng, W. Song, S. Chen, Y. Zhang	112
The Biological Effects of the Marine Dumping on Mollusks L. Zheng, W. Cui, W. Song, L. Qu, Y. Yuan, D. Yang	118
Preparation and Characterization of Lignin-containing Nanofibrillar Cellulose X. Wang, X. Cui, L. Zhang	125
Optimization of Glycosaminoglycan Extraction on <i>Patinopecten Yessoensis</i> Waste Q. Cui, G. Li, C. Yuan	131
Experimental Research on Gas Production with Single Material Waste H. Wang, L. Zhang, S. Cheng, T. Han	138
Papermaking Effluent Treatment: A New Cellulose Nanocrystalline/Polysulfone Composite Membrane Y. Zhou, H. Zhao, H. Bai, L. Zhang, H. Tang	145
A Bibliometric Analysis of Anaerobic Digestion for Butanol Production Research Trends S. Shi, C. Yue, L. Wang, X. Sun, Q. Wang	152
Hydrothermal Carbonization of Waste Biomass for Energy Generation Z. Liu, R. Balasubramanian	159
Recycling and Disposal Methods for Polyurethane Foam Wastes W. Yang, Q. Dong, S. Liu, H. Xie, L. Liu, J. Li	167
Study on Disposal and Destruction of Abandoned Chemical Weapons by the Japanese Army in China Z. Yao, X. Wang, Y. Guan, X. Cui	176
Determination of Moisture in Red Agent of Abandoned Chemical Weapon by Japan using Karl Fischer Titration Y. Nie, C. Lu, L. Zhou, X. Qu, X. Bai	183
The Overview of Destruction Technologies for Japanese Abandoned Chemical Weapons in China Y. Guan, Q. Wang, X. Wang, H. Tang, X. Cui	188
Research on Method of Health Assessment about the Destruction Equipment for High-risk Hazardous Chemical Waste H. Zhang, J. Zhang, X. Liu, G. Yan, Y. Liu	192
Research on Key Designing Parameters of Destruction Furnace for Explosive Waste G. An, Y. Wang, W. Li, J. Liu	202
Key Issues Study on the Operation Management of Medical Waste Incineration Disposal Facilities Y. Chen, L. Liu, Q. Feng, G. Chen	208
Behavior of Heavy Metals in the Vitrification of MSWI Fly Ash with a Pilot-scale Diesel Oil Furnace S. Tian, J. Li, F. Liu, J. Guan, L. Dong, Q. Wang	214

The Detoxification of Medical Waste Incineration Fly Ash using Self-Propagating Reaction Y. Xie, J. Zhu	222
Study on Suitability of Hazardous Wastes Entering the Landfill Directly D. Li, B.-d. Xi, Z. Wei, X. He, Y. Jiang, G. Zhao	229
Research and Recycling Advancement of used Oil in China and All Over the World M. Yu, H. Ma, Q. Wang	239
Water-Washing of Iron-Ore Sintering Gas Cleaning Residue for Beneficial Reutilization as Secondary Construction Material S. Xu, J. Liu, M. Song	244
Recovery of Hazardous Metals from Spent Refinery Processing Solid Catalyst W. Shen, T. Li, J. Chen	253
Application of Best Available Technologies on Medical Wastes Disposal/Treatment in China (with case study) C. Jiang, Z. Ren, Y. Tian, K. Wang	257
Degradation Oxidation Applied to the Acetochlor in Aqueous Solutions with Potassium Peroxymonosulfate with Fenton's Reagent Y. Zhang, Z. Luo, T. Pan, C. Guo	266
Effect of HCH on the Jiaozhou Bay Waters-the Transfer Laws of HCH Y. Chen, Z. Ding, L. Zheng, Y. Zhang, D. Yang	271
Emissions of PCDD/Fs from Steel and Secondary Nonferrous Productions C. Zou, J. Han, H. Fu	279
Studies on Remediation of DDT-Contaminated Soil and Dechlorination of DDT C. Xia, X. Ma, S. Liu, P. Fan	289
The Effects of Cadmium on Germination and Seedling Growth of <i>Suaeda salsa</i> S. Liu, C. Yang, W. Xie, C. Xia, P. Fan	293
Biodegradation of Phenol and 4-Chlorophenol by <i>Candida tropicalis</i> W1 J. Wang, X. Ma, S. Liu, P. Sun, P. Fan, C. Xia	299
Life Cycle Analysis for PFOS Decomposition in Supercritical Water J. Zhu, Y. Xie, F. Zhang	304
Anaerobic Biodegradation of PAH in River Sediment Treated with Different Additives L. Su, H. Zhou, G. Guo, A. Zhao, Y. Zhao	311
Effect of Surfactant on HCB Dechlorination by Ag/Fe Bimetal in Polluted Soil Eluent X. Nie, J. Liu, X. Zeng	320
Extraction of Polybrominated Diphenyl Ethers from Plastic Solution by Supercritical Carbon Dioxide Anti-Solvent S. Peng, S. Liang, M. Yu	327
Experimental Research on Lime Drying Process of Mechanical Dewatered Sludge from a Wastewater Treatment Plant in Beijing X. Liu, J. Shi, Y. Zhao, Z. Li, J. Zhang	335
Primary Research on Agricultural Effect of Sludge-Impact of Sludge Application on Crop Seeds Germination and Seedling Growth W. Du, J. Jiang, C. Gong	340
The Permeability and Mechanical Properties of Cellulose Acetate Membranes Blended with Polyethylene glycol 600 for Treatment of Municipal Sewage H. Bai, Y. Zhou, X. Wang, L. Zhang	346
Preliminary Study at Lipids Extraction Technology from Municipal Sludge by Organic Solvent F. Zhu, L. Zhao, Z. Zhang, H. Jiang	352
Research on Drying Effect of Different Additives on Sewage Sludge F. Zhu, H. Jiang, Z. Zhang, L. Zhao, J. Wang, J. Hu, H. Zhang	357
The Study of Sewage Sludge Thermo-Drying Efficiency F. Zhu, Z. Zhang, H. Jiang, L. Zhao	363
Sludge Conditioning by Sonication and Sonication-Chemical Methods G. Zhang, T. Wan	368
Synthesis of Sludge@Carbon Nanocomposite for the Recovery of As (V) from Wastewater S.E.A. Sharaf El-Deen, F. Zhang	378
Acidification of Waste Activated Sludge During Thermophilic Anaerobic Digestion X. Sun, W. Wang, C. Chen, C. Luo, J. Li, J. Shen, L. Wang	391
Metal Recovery from Sludge through the Combination of Hydrothermal Sulfidation and Flotation X. Min, C. Yuan, Y. Liang, L. Chai, Y. Ke	401
Relationship between the Characteristics of Cationic Polyacrylamide and Sewage Sludge Dewatering Performance in a Full-Scale Plant J. Wang, C. Chen, Q. Gao, T. Li, F. Zhu	409
Comparative Study on Physical and Chemical Characteristics of Sludge Vermicomposted by <i>Eisenia Fetida</i> F. Liu, P. Zhu, J. Xue	418
Concentrations and Congener Profiles of PCDD/Fs in Sludge Spray Drying-Incineration Process S. Sheng, C. Wang, Z. Gao, Y. Wang, K. Wang, C. Wu, Y. Lu	424
The Performance and Environmental Impact of the Integrated Spray Drying and Incineration Demonstration Project for Dying Sludge Treatment C. Wang, Q. Yu, S. Sheng, Z. Gao, C. Wu, K. Wang	433
Leaching Study of Spent Li-ion Batteries J. Wang, M. Chen, H. Chen, T. Luo, Z. Xu	443
Release Kinetics of Ba and Pb Contained in WPCBs During the Traditional Hydrometallurgical Process J. Huang, M. Chen, H. Chen, Q. Sun	451
The Products Characteristics of Calcium-basic Compounds Pyrolysis with Waste Printed Circuit Boards (PCB) J. Guan, J. Wang, X. Min, W. Wu	461
Survey on Disposal Behaviour and Awareness of Mobile Phones in Chinese University Students B. Li, J. Yang, X. Song, B. Lu	469

Evaluation on Implementation of Chinese ‘WEEE Catalog’ Policy H. Tian, Y. He, T. Liu, Z. Yao	477
Improving the End-of-Life for Electronic Materials via Sustainable Recycling Methods P. Jiang, M. Harney, Y. Song, B. Chen, Q. Chen, T. Chen, G. Lazarus, L.H. Dubois, M.B. Korzenski	485
A Novel Process for Detoxification of BERs in Waste PCBs M. Xing, F. Zhang	491
Study on Separation of Cobalt and Lithium Salts from Waste Mobile-phone Batteries G. Jian, J. Guo, X. Wang, C. Sun, Z. Zhou, L. Yu, F. Kong, J.-r. Qiu	495
Progress in Research of Comprehensive Utilization of Nonmetallic Materials from Waste Printed Circuit Boards B. Wei, J.-h. Li, H.-h. Xie, L.-l. Liu, Q.-y. Dong	500
Present Status of e-waste Disposal and Recycling in China L. Wei, Y. Liu	506
The Status and Progress of Resource Utilization Technology of e-waste Pollution in China S. Kong, H. Liu, H. Zeng, Y. Liu	515
The Eco-design and Green Manufacturing of a Refrigerator J. Ma, F. Yin, Z. Liu, X. Zhou	522
Preliminary Study on Process Mapping and Policy Recommendations of the WEEE Closed-loop in China Y. Tian, L. Yu, C. Jiang, Y. Zhu	530
Situation of e-waste Management in Cambodia C. Sothun	535
Recovery of Indium from Scrap TFT-LCDs by Solvent Extraction J. Ruan, Y. Guo, Q. Qiao	545
Brominated Flame Retardants (BFRs) in Waste Electrical and Electronic Equipment (WEEE) Plastics and Printed Circuit Boards (PCBs) Y. Chen, J. Li, L. Chen, S. Chen, W. Diao	552
Current Status on Leaching Precious Metals from Waste Printed Circuit Boards Y. Zhang, S. Liu, H. Xie, X. Zeng, J. Li	560
Research Progress on the Recycling Technology for Nonmetallic Materials from Wasted Printed Circuit Board W. Li, Y. Zhi, Q. Dong, L. Liu, J. Li, S. Liu, H. Xie	569
LCA of Scrap CRT Display at Various Scenarios of Treatment R. Niu, Z. Wang, Q. Song, J. Li	576
Recycling of Leaded Glass: Scrap Cathode Ray Glass and Fluorescent Lamp Glass F. Xie, L. Liu, J. Li	585
Current Status and Future Perspective of Waste Printed Circuit Boards Recycling X. Zeng, L. Zheng, H. Xie, B. Lu, K. Xia, K. Chao, W. Li, J. Yang, S. Lin, J. Li	590
Experimental Study on the Treatment of Chromium-containing Wastewater by Aged Refuse F. Wang, Y. Sun, R. Zhou	598
Screening for Formulas of Complex Substrates for Seedling Cultivation of Tomato and Marrow Squash M. Ge, G. Chen, J. Hong, X. Huang, L. Zhang, L. Wang, L. Ye, X. Wang	606
Food-pack Waste Systemic Management: Alternative Ways to Reuse Materials and to Develop New Business, Products and Local Markets C. Ceppa, G.P. Marino	616
Disposal of Obsolete Pesticides Including DDT in a Chinese Cement Plant as Blueprint for Future Environmentally Sound Co-Processing of Hazardous Waste Including POPS in the Cement Industry Y. Li, H. Wang, J. Zhang, J. Wang	624
The Industrial Practice of Co-Processing Sewage Sludge in Cement Kiln Y. Li, H. Wang, J. Zhang, J. Wang, L. Ouyang	628
Research on Dioxins Suppression Mechanisms During MSW Co-Processing in Cement Kilns Y. Li, H. Wang, J. Zhang, J. Wang, R. Zhang	633
The Industrial Practice of POPs Contaminated Soil as Alternative Raw Materials in Clinker Production Y. Li, H. Wang, J. Zhang, J. Wang, W. Miao	641
Kinetic and Equilibrium Studies of Chromium (III) Removal from Aqueous Solution by IRN-77 Cation-Exchange Resin H. Li, J. Li, Z. Chi, W. Ke	646
Degradation of Diesel Pollutants in Huangpu-Yangtze River Estuary Wetland using a Plant-Microbes System X. Liu, J. Zou, Z. Wang, X. Hu, X. Liang, J. Wei	656
Pollution Control Technologies of Dioxins in Municipal Solid Waste Incinerator H. Liu, S. Kong, Y. Liu, H. Zeng	661
The Key to Avoiding Secondary Pollutants in the Incineration of Domestic Waste Lies in Prevention J. Li	669
Optimized Hydrometallurgical Route to Produce Ultrafine Zinc Powder from Industrial Wastes in Alkaline Medium Q. Li, Y. Zhao, J. Jiang, C. Zhang	674
Preliminary Research on the Index System for Evaluating the Feasibility of Waste Import Y. He, Q. Luo, H. Hu, Y. Zheng	683
Situation Analysis and Countermeasures of China’s Fly Ash Pollution Prevention and Control Y. He, Q. Luo, H. Hu	690
Response of Community Structure and Activity of Methanotroph to Different CH ₄ /O ₂ Ratios L. Ren, H. Li, W. Lu	697
Decomposition of Zinc Ferrite in Zinc Leaching Residue by Reduction Roasting N. Peng, B. Peng, L. Chai, W. Liu, M. Li, Y. Yuan, H. Yan, D.-K. Hou	705
Disposal Methods on Solid Wastes from Mines in Transition from Open-Pit to Underground Mining Z. Lu, M. Cai	715
Review on Remediation Technologies of Soil Contaminated by Heavy Metals Z. Yao, J. Li, H. Xie, C. Yu	722

Computer Simulation of Moisture Distribution in Unlined Aerobic Bioreactor Landfills—Quasi-Steady-State Condition J. Gan, Y. Sun, W. Sun, S. Liu	730
Study on Green Enrichment and Separation of Copper and Iron Components from Copper Converter Slag H. Cao, J. Wang, L. Zhang, Z. Sui	740
Study on Process Mineralogy of a Used Cathode of Carbon Block from Electrolytic Aluminum Factory H. Liu, J. Wang, S. Shen, Y. Luo	749
Heavy Metals Migration in Soil in Tailing Dam Region of Shuikoushan, Hunan Province, China X. Sun, P. Ning, X. Tang, H. Yi, K. Li	758
Study on Sustainable Utilization Strategy of the Mining Wastelands J. Wang	764
Study on Harmless and Resources Recovery Treatment Technology of Waste Cathode Carbon Blocks from Electrolytic Aluminum J. Wang, H. Liu, Y. Luo, Q. Niu, H. He, S. Shen	769
Remediation of Heavy Metal Contamination in Calcareous Soil by Washing with Reagents: A Column Washing Z. Yang, S. Zhang, Y. Liao, Q. Li, B. Wu, R. Wu	778
Recovering of Zinc from Solid Waste Bearing Sphalerite or Zinc Ferrite by Mechano-Chemical Extraction in Alkaline Solution C. Zhang, J. Wang, J. Bai, Y. Zhao	786
An Overview of Utilization of Steel Slag H. Yi, G. Xu, H. Cheng, J. Wang, Y. Wan, H. Chen	791