

UPDATED ON
21/08/2019

DAY 1 / MONDAY
SEPTEMBER 30

MONDAY SEPTEMBER 30

MORNING

OPENING SESSION / CENTRAL HALL / 9:00-13:00

Chair / *Presidente*: Raffaello Cossu (IT)

WELCOME ADDRESSES / SALUTI DI BENVENUTO

- 9:15-10:20** Raffaello COSSU / University of Padova (IT)
Peter KJELDSEN / Technical University of Denmark (DK)
Yasushi MATSUFUJI / Fukuoka University (JP)
Rainer STEGMANN / Hamburg University of Technology (DE)
Anders LAGERKVIST / IWWG President (SE)
Evangelos DIAMADOPOULOS / Technical University of Crete (GR)

OPENING LECTURES / RELAZIONI DI APERTURA:

- 10:20-10:50** Jim BRIDGES / University of Surrey (UK)
The need to change roles - from responders to leaders
- 10:50-11:20** Coffee Break
- 11:20-11:50** Rainer STEGMANN / Hamburg University of Technology (DE)
The great transformation
- 11:50-12:20** Annalisa OBOE / University of Padova (IT)
It's Gender Time in STEM (Science, Technology, Engineering and Mathematics)!

GREECE SPECIAL GUEST COUNTRY / GRECIA SPECIAL GUEST:

- 12:20 - 12:50** Evangelos GIDARAKOS / Technical University of Crete (GR)
Waste management issues in Greece

MONDAY SEPTEMBER 30

AFTERNOON

SESSION A1 / CENTRAL HALL / 15:30-17:10

POLICIES AND STRATEGIES IN WASTE MANAGEMENT

Chair / *Presidente*:

M. Abis, S. Fiore, K. Kuchta (DE)

Assessment of municipal solid waste management in EU: the synergy between recycling and thermal treatments

A. Allesch, P.H. Brunner, M. Huber-Humer (AT)

Optimizing waste management systems based on material flow analysis

T. Tasaki, R. Inaba, K. Kawai, E. Kojima, R. Tajima, K. Suzuki, R. Kubota (JP)

Waste management in the era of population decrease and aging

P.F. Albizzati, D. Tonini, T.F. Astrup (DK)

Sustainability assessment of the management of second generation biomass

H. Robinson (UK)

Politicians, the press and the public: can they give us sustainable waste management? (or, "lifestyle, lunacy, and landfills")

17:10 - 18:00 Coffee break + Poster discussion

SESSION A2 / CENTRAL HALL / 18:00-19:40

WASTE GENERATION

Chair / *Presidente*:

A. Gassner, J. Lederer, J. Fellner (AT)

Material demand and waste generation of road transport infrastructure - The case of Vienna

L. Spreutels, M. Héroux, R. Legros (CA)

A spatial-and-scale-dependant model for predicting MSW generation, diversion and collection cost based on dwelling-type distribution

B. Fallah, A. Richter, K.T.W. Ng (CA)

Optimization of weekly organic waste ANN prediction model using socioeconomic and climatic factors in Austin, TX

P. Berenjkar, Y. Y. Li, Q. Yuan (CA)

A review of the application of system dynamics method on waste management practices

SESSION B1 / CENTRAL HALL 2 / 15:30-17:10

LANDFILL SITING APPROACHES

Chair / Presidente:

N. Karimi, A. Richter, K.T.W. Ng (CA)

Improving the selection process for future landfills: an approach combining RS, GIS, and MCDA tools – Applied for Vancouver, BC

M. Gallo, L. Moreschi, A.C. Taramasso, M. Robba, A. Del Borghi (IT)

Multicriteria analysis as decision support tool in waste management under emergency conditions: the case study of the municipality of Genoa in Italy following the closure of the Scarpino landfill

A. Richter, N. Karimi, K.T.W. Ng (CA)

Integration of GIS, Remote Sensing, and diversion rates to assess the efficiency of landfill regionalization in Nova Scotia, Canada

J.M. Torrente, V.M. Giampietro, M. Ripa, R. Chifari (IT)

The quantitative story of the environmental pressure of landfills in developing countries. Case study: Cerro Patacón

V. Kumar, A.L. Haldar, A. Yadav, S. Shukla (IN)

Selection of suitable landfill site for solid waste disposal using multi-criterion layers and GIS techniques

V. Kumar, V. Ahmed, M.M. Ansari (IN)

Quantification of solid waste and thermal variation analysis using geospatial data & GIS technique

17:10 - 18:00 Coffee break + Poster discussion

SESSION B2 / CENTRAL HALL 2 / 18:00-19:40

LANDFILL PLANNING AND DESIGN

Chair / Presidente:

E. Huybrechts, P. Wens (BE)

Challenging landfill construction

C. Bax, M.L. Voti, S. Sironi, L. Capelli (IT)

Application and performance verification of electronic noses for landfill odour monitoring

L. Capelli, S. Sironi (IT)

Influence of modelling choices on the results of landfill odour dispersion

Y. Le Bihan, D. Loranger-King, N. Turgeon, N. Pouliot, N. Moreau, D. Deschênes, G. Rivard (CA)

Field trials on the use of alternative cover materials to control surface emissions (H₂S and VOCs) at an engineered landfill

A. R. Cabral, V. Simard, M. Duarte Neto, G. Lacombe (CA)

Design, construction and monitoring of large-scale lysimeters to assess seepage through experimental final cover designs

MONDAY SEPTEMBER 30

AFTERNOON

SESSION C1 / PANORAMA HALL / 15:30-17:10

DECISION SUPPORT TOOLS FOR BIOWASTE MANAGEMENT

Chair / Presidente:

E. Angouria-Tsorochidou, M. Klinglmair, M. Thomsen (DK)

Evaluating a new decision support tool for biowaste management: preliminary assessment of a case study in Aarhus, Denmark

O.H. Fjellander, D.S. Nørgaard, P.R. Jensen, V. Bisinella (DK)

Feeding or energy purposes? Quantifying the environmental impact of alternative uses of biomass residues

F. Ardolino, G. Colaleo, U. Arena (IT)

Thermochemical and biochemical exploitation of biowaste: an LCA study

S. Andreasi Bassi, F. Valentino, G. Moretto, T. Astrup, A. Boldrin (DK)

Environmental assessment of the production of bio-plastics from urban bio-waste

L. Loyon (FR)

Regulatory and incentive policies to reduce nitrogen pollution in the Brittany region (France)

17:10 - 18:00 Coffee break + Poster discussion

SESSION C2 / PANORAMA HALL / 18:00-19:40

STRATEGIES FOR BIOENERGY RECOVERY FROM WASTE

Chair / Presidente:

A. Schüch, J. Sprafke, M. Nelles (DE)

Role of biogenic waste and residues as an important building block forward a successful energy transition and future bioeconomy - Results of a site analysis

M. Boccarossa, M. Di Addario, F. Tatano (IT)

Scenarios of bioenergy recovery from organic fraction of residual municipal waste in the Marche region (Italy)

L. Kamarád, W. Gabauer, G. Bochmann (AT)

Challenges in the full scale operation of industrial and municipal biogas plants

J. Sprafke, N. Engler, Q. Thabit, M. Nelles, A. Schüch (DE)

Increasing the base load capacity of biowaste fermentation plants by optimised substrate management

SESSION D1 / PANORAMA HALL 2 / 15:30-17:10

STRATEGIES IN WASTE THERMAL TREATMENT

Chair / Presidente:

R.M. Sebastian, D. Kumar, B. J. Alappat (IN)

Assessment of incinerability of municipal solid waste in Asian countries using incinerability index

E. Suzuki, M. Asari (JP)

MSW incineration facility in Japan: as environmental learning and local base

H. De Chefdebien (FR)

Practical proposals for solving the pending issues related to the implementation of the waste incineration BREF and to compliance verification - Guidance

K. Ishii, T. Furuichi, S. Ochiai, M. Sato (JP)

Waste management strategies based on biomass utilization in Japan

F. Ardolino, C. Boccia, U. Arena (IT)

Environmental performances of a modern waste-to-energy unit in a life cycle perspective

F.V. Andretti, J.A. Ferreira, C.F. Mannarino (BR)

Techno economic feasibility of waste-to-energy plant – A simulation to Rio de Janeiro city, Brazil

17:10 - 18:00 Coffee break + Poster discussion

SESSION D2 / PANORAMA HALL 2 / 18:00-19:40

THERMAL TREATMENT ACCORDING TO WASTE QUALITY

Chair / Presidente:

T. Schwarzböck, H. Rechberger, J. Fellner (AT)

Optimization potential in waste-to-energy plants by better waste homogenisation

Y.A. Gomez Rueda, L. Helsen (BE)

The effect of carbon dioxide and steam on the cracking of naphthalene as tar surrogate

S.A. Viczek, K. Khodier, R. Pomberger, R. Sarc (AT)

Grain size dependent distribution of As, Cd, Cl, Co, Cr, Fe, Hg, Ni, Pb, Sb, Sn, Ti, V, W, and Zn in coarse-shredded commercial waste

S.A. Iwarere, N.M. Mkhize (ZA)

Pyrolysis of various tyre types: characteristics and kinetic studies using thermogravimetric analysis

S.A. Viczek, A. Aldrian, R. Pomberger, R. Sarc (AT)

Analytical determination of the material-recyclable share of SRF through co-processing in the cement industry - Comparison of ashing temperatures

H. Zhou, D. Chen, B. Gong, L. Hong (CN)

Changes of incineration characteristics upon carrying out source separation collection of MSW

MONDAY SEPTEMBER 30

AFTERNOON

SESSION E1 / 15:30-17:10

CIRCULAR ECONOMY - CASE STUDIES IN DIFFERENT COUNTRIES

Chair / Presidente:

R. Cayumil, S. Guajardo, M. Sánchez, R. Abeliuk (CL)

Current status of waste management in Chile: towards a circular economy

N. Sato, C. Iida, C. Nishi (JP)

Evaluation of organic and recyclable waste separation at generation source in Ratnapura municipal council and Kataragama Pradeshiya Sabha in Sri Lanka

F. Villa, M. Vaccari, G. Vinti (IT)

Appropriate solid waste management system in Quelimane (Mozambique) - Study and design of a small scale center for plastic sorting with wastewater treatment

A. Rahimzadeh, W. Tang, W. Sher (AU)

Spoil handling in Australia

17:10 - 18:00 Coffee break + Poster discussion

SESSION E2 / 18:00-19:40

WASTE MANAGEMENT SUSTAINABILITY IN DEVELOPING COUNTRIES

Chair / Presidente:

G. Addae, B. Fei-Baffoe (GH)

Kumasi metropolitan assembly market waste compositional analysis study, Ghana

J. Gutberlet (CA)

Grassroots innovations in waste governance addressing sustainable development goals

V.R. Sankar Cheela, U. Shankar, B. Dubey, M. John (IN)

Using environmental forensics to aid landfill management in developing countries - An Indian case study

A.F. Ali, S.K. Ilah (NG)

Groundwater pollution risks associated with sanitation facilities in Dala Local Government Area of Kano State, Northwestern Nigeria

SESSION F1 / 15:30-17:10

WORKSHOP: GENDER PERSPECTIVES IN WASTE MANAGEMENT

Chair / *Presidente*: Maria Cristina Lavagnolo (IT)

Introductory lecture:

M.C. Lavagnolo (IT)

Gender perspectives in sustainable waste management

17:10 - 18:00 Coffee break + Poster discussion

SESSION F2 / 18:00-19:40

IWWG-YOUNG ROUNDTABLE

Chairs / *Presidenti*: Francesco Garbo (IT), Lingyue Zhang (CN)

Although many opportunities (e.g. funding, grants, etc.) are specifically dedicated to young researchers, the current fragmentation of the young community, especially in terms of interconnections and cooperation, tends to strongly limit such possibilities. The goal of IWWGyoung is the creation of an international working group, with members coming from both developed and developing countries, based on the sharing of valuable information and on the arrangement of international collaborations within the young researchers community, in the field of solid waste management. IWWGyoung focuses transversely on solid waste management, but the topics are considered from a different perspective: the sustainability, feasibility, reliability of new ideas/systems/scenarios should be always assessed together with the applicability to different contexts, countries or geographical areas, as a reflection of the international spirit of the group. The scope of the roundtable is to let members present their current research activities, discuss on critical points, suggest new and innovative solutions to solve the problems encountered during the researches, finalize collaborations and projects.

Introductory lectures:

F. Garbo (IT)

Sustainable decentralized waste and wastewater treatment systems

V. Grossule (IT)

Cost-effective appropriate solutions for sustainable waste management

G. Beggio (IT)

Developing waste ecotoxicity assessment for the promotion of a sustainable Circular Economy, with a focus on OFMSW digestates

R. Malesani (IT)

Construction and demolition waste management in renovation activities of abandoned areas

L. Zhang (CN)

mechanism and control method of foam production by leachate treatment

F.-M. Pellerà (GR)

Biochar production from waste biomass for agronomic and environmental application

MONDAY SEPTEMBER 30

AFTERNOON

SESSION G1 / 15:30-17:10

WORKSHOP: STRATEGIES FOR LANDFILL MINING

Chair / *Presidente*: Juan C. Hernández Parrodi (BE)

Europe has somewhere between 150,000 and 500,000 landfill sites, with an estimated 90% of them being “non-sanitary” landfills, predating the EU Landfill Directive of 1999. These older landfills tend to be filled with municipal solid waste and often lack any environmental protection technology. “Doing nothing” or remediating them depends largely on technical, societal and economic conditions which vary between countries. Beside “doing nothing” there are different scenarios in landfill mining (LFM), from re-landfilling the waste into “sanitary landfills” to seizing the opportunity for a combined resource-recovery and remediation strategy. This workshop will address present and future issues and potential opportunities of LFM as an embedded strategy in current waste management systems through a multi-disciplinary approach.

Introductory lectures:

J.C. Hernández Parrodi (BE)

Present and future of landfill exploration and mechanical processing

H. Lucas (DE), M. Gigantino (CH)

Strategies for upcycling landfilled waste

G. Sauve (BE)

Environmental aspects for LFM

J.L. Esguerra (SE)

Critical factors for the economics of LFM

P. Einhäupl (BE)

What policies matter? An overview of European waste legislation in the context of LFM

17:10 - 18:00 Coffee break + Poster discussion

SESSION G2 / 18:00-19:40

RECYCLING OF PHOTOVOLTAIC PANEL

Chair / *Presidente*:

S. Scherhauser, A. Happenhofer, I. Meyer, F. Part, M. Sommer, P. Beigl (AT)

The importance of the recycling of products used in the decarbonisation of the energy sector

J. Bumba, V. Drinek, R. Fajgar, F. Kastanek, O. Solcova (CZ)

Recycling of photovoltaic cells and other Si, Ge electronic waste

L.S.S. Oliveira, L.H. Yamane, R.R. Siman (BR)

Silver recovery from end-of-life photovoltaic panels

V. Savvilotidou, E. Gidaracos (GR)

Reuse of glass from photovoltaic panels in construction materials

SESSION H1 / 15:30-17:10

IWWG TRAINING COURSE: MONITORING OF LANDFILL GAS EMISSIONS

Chairs / *Presidenti*: Viktoria Wechselberger, Marion Huber-Humer (AT)

On a global level, methane emissions from landfills still represent the largest direct source of greenhouse gas emissions from the solid waste sector. Diverse technologies that should mitigate LFG emissions, like gas extraction systems, methane oxidation covers or in-situ aeration measures, are therefore implemented. For a reliable assessment of the performance of these measures, and particularly for GHG counting and inventories, methods are required, that can cope with the high spatial and temporal variability of landfill gas emission fluxes.

In the trainings course current approaches to monitor and quantify methane emissions from landfill sites will be presented. A particular focus will be set on the one hand on conventional methods like chamber systems, and on the other hand on innovative approaches, such as using the open-path tunable diode laser absorption spectrometry (OP-TDLAS). This is a method to determine path-integrated gas concentrations. Based on the measured concentrations as well as meteorological data emissions from the site can be quantified via inverse dispersion modelling. The training course will be run in an interactive manner, with lots of opportunity for questions and discussion, and for specific aspects of particular interest to delegates to be covered.

17:10 - 18:00 Coffee break + Poster discussion

SESSION H2 / 18:00-19:40

IWWG TRAINING COURSE: LEACHATE TREATMENT

Chair / *Presidente*: Howard Robinson (UK)

At both operational and closed landfill sites in every country, the management of leachate remains a key issue in order to prevent adverse environmental impacts. In addition, management of leachates is the most important factor that will determine the aftercare period for closed landfills; while the majority of landfill gas generation will be completed within about 50 years, the flushing out of soluble contaminants released during wastes decomposition as leachate, will take many centuries. This training course will provide a brief introduction to processes of waste decomposition and leachate generation and composition, but will then focus on state-of-the-art leachate treatment processes, based on detailed operational data from many full-scale leachate treatment plants, in temperate and tropical climates, and in developed and developing countries. Case studies from some of the largest and most advanced leachate treatment plants in the world will be presented and discussed, with plenty of opportunity for delegates to discuss their own leachate problems, and try to find ways in which they can select appropriate technologies, or improve operation of existing treatment systems.

DAY 2 / TUESDAY
OCTOBER 1

TUESDAY OCTOBER 1

MORNING

SESSION A3 / CENTRAL HALL / 9:00-10:40

WASTE CHARACTERIZATION I

Chair / Presidente:

P. Hennebert (FR)

Proposition of threshold for waste contaminated with mercury (compounds) in application of the Minamata Convention on mercury and impact assessment

G. Choi, K. Kim, S. Lee, W. Yang, J. Kang, T. Jeon, S. Shin (KR)

Evaluation of waste characteristics carried into incineration facility

B. Rahardyan, E. Binner (ID)

Applicability of single measurement OxiTop for liquid samples ("BOD" - measurement) for solid waste bioreactivity determination

S. Coussy, G. Boissard, D. Guyonnet (FR)

French feedback on the use of inert waste landfill criteria for managing excavated soils

10:40 - 11:10 Coffee break

SESSION A4 / CENTRAL HALL / 11:10-12:50

WASTE CHARACTERIZATION II

Chair / Presidente:

A. Happenhofer, P. Beigl (AT)

Standardization of residual waste sorting analyses – Potentials and limitations in an international comparison

A. Khanyile, G.C. Caws, S.L. Nkomo, N.M. Mkhize (ZA)

Characterisation study of various disposable diaper brands

A. Gassner, T. Schwarzbock (AT)

Waste analysis including capacity development in a refugee settlement in the West-Nile region of Northern Uganda

SESSION B3 / CENTRAL HALL 2 / 9:00-10:40

LANDFILL CHARACTERIZATION AND MONITORING

Chair / Presidente:

I. Isunza Manrique, D. Caterina, E. Van De Vijver, G. Dumont, F. Nguyen (BE)

Assessment of geophysics as a characterization and monitoring tool in the dynamic landfill management (DLM) context: opportunities and challenges

D. Caterina, I.I. Manrique, C. Inauen, A. Watlet, B. Dashwood, R. De Rijdt, G. Dumont, J. Chambers, F. Nguyen (BE)

Contribution of geophysical methods to the study of old landfills: a case study in Onoz (Belgium)

N. Sliusar, V. Korotaev, T. Filkin (RU)

Application of unmanned aerial vehicles for solid waste landfill management

H. Chanakya, B. S. Jai Prakash, G. C. Ranganath, K. Naganna (IN)

Environment hazard scene investigation (EHSI) and emerging challenges at poorly documented dumpsites

T. Radu, R. Sreenivas, A. Mustafa, H. Albuflasa (UK)

Towards landfill monitoring in the Kingdom of Bahrain: assesment of impact

10:40 - 11:10 Coffee break

SESSION B4 / CENTRAL HALL 2 / 11:10-12:50

LANDFILL PROCESSES

Chair / Presidente:

N. Fricko, C. Brandstätter, J. Fellner (AT)

Identifying nitrogen transformation pathways in old landfills – Adaption and application of methods developed in soil chemistry

Y. Long, W. Liu, L. Ying, D. Shen (CN)

A novel aerobic sulfate reduction process in landfill mineralized refuse

A.N. Srivastava, S. Chakma (IN)

Co-disposal of organic industrial waste with municipal solid waste in lab-scale bioreactor landfill

F. De La Cruz, M. Barlaz (USA)

Characterization of thermophilic waste decomposition at a landfill experiencing elevated temperatures

T.F. Oliveira, F.P. Manéo, C.C. Guimarães (BR)

Simulation of the environmental impact generated by the degradation of cell phones sent to landfills

TUESDAY OCTOBER 1

MORNING

SESSION C3 / PANORAMA HALL / 9:00-10:40

COMPANIES FORUM

Chair / *Presidente*:

L. Nettuno, G. Garuti, L. Pilenga, M. Heidari, Y. Lazzarini (IT)

“Waste to efficiency” approach for sustainable MSW management in emerging countries

H. Haaring (NL)

Sludge treatment for circular economy

A. Bertacchini (IT)

Decentralised energy from waste plants based on organic rankine cycle technology

R. Eden, M. Moulden (UK)

Pyrolysis as a method of final municipal solid waste disposal and power generation

10:40 - 11:10 Coffee break

SESSION C4 / PANORAMA HALL / 11:10-12:50

ANAEROBIC DIGESTION - LAB SCALE TESTS FOR PROCESS ENHANCEMENT

Chair / *Presidente*:

J. Heerenklage, D. Rechtenbach, I. Atamaniuk, A Alassali, A.-C. Graage, A. Krüger, A. Muntoni, M. Isipato, K. Kuchta (DE)

Investigation of standardised and adapted inocula for biomethane potential tests

J. Wong, L. Luo (HK)

Improvement of food waste methane-generating platform by enriching acetate and hydrogen production in an integrated pressurized solid-liquid anaerobic reactor

A. Cesaro, V. Belgiorno (IT)

Advanced chemical pretreatments for the anaerobic digestion of the organic fraction of municipal solid waste

Q. Chen, N. Wang, T. Yuan, Q. Xu (CN)

Effect of manganese species on anaerobic digestion

P. Ogunlude, O. Abunumah, I. Orakwe, H. Shehu, F. Muhammadsukki, E. Gobina (UK)

Upgrading biogas to a bio-methane by use of nano-structured ceramic membranes

SESSION D3 / PANORAMA HALL 2 / 9:00-10:40

PYROLYSIS AND GASIFICATION OF BIOMASS

Chair / *Presidente*:

L. Yin, B. Yu, Y. Hu, D. Chen (CN)

Study on heat and mass transfer characteristics of biomass particles during pyrolysis

V.E. Messerle, A.B. Ustimenko, O.A. Lavrichshev, N.A. Slavinskaya, Zh.Zh. Sitdikov (KZ)

Gasification of biomass in plasma gasifier

G. Lisak, S. Heberlein, A. Veksha, D. Wu, A. Giannis (SG)

Make it greener - Using renewable biomass charcoal to operate the high temperature slagging gasification facility for municipal solid waste

A. Manali, P. Gikas (GR)

Utilization of primary sieved solids for gasification and energy production

A. Veksha, F. Teoh, V. Chia, A. Giannis, T.T. Lim, G. Lisak (SG)

Recycling of gasification slag from municipal solid waste into catalysts for steam reforming of naphthalene

G. Cali, F. Parrillo, D. Marotto, A. Pettinau, U. Arena (IT)

Air gasification of eucalyptus biomass in a pilot scale fluidized bed reactor

10:40 - 11:10 Coffee break

SESSION D4 / PANORAMA HALL 2 / 11:10-12:50

SUSTAINABLE MANAGEMENT OF SECONDARY RAW MATERIALS

Chair / *Presidente*: Flora Faleschini (IT)

This session aims at providing advances to the state-of-the-art and state-of-the-practice in reuse of waste materials in construction industry.

In general, manuscripts selected for the session, will reflect original research and technological advances on topics that include, but are not limited to the behavior, analysis, testing, design, construction, and regulations of construction and building materials and structures using:

- recycled aggregates coming from construction and demolition waste (C&DW);
- fly ash, rice husk ash, bottom ash and other supplementary cementing materials (SCMs);
- slags and manufactured aggregates;
- geopolymers and inorganic polymers;
- and other waste aimed at enhancing the environmental sustainability of ordinary construction materials.

TUESDAY OCTOBER 1

MORNING

SESSION E3 / 9:00-10:40

WASTE MANAGEMENT IN DEVELOPING COUNTRIES: CASE STUDIES

Chair / Presidente:

A. Damgaard, V. Takou, E. Ramin, M.M. Andersen (DK)

Identifying industrial ecology options for an industrial park - Case of Ruaraka, Kenya

B. Rahardyan, D. Saniti (ID)

Social network analysis of community based solid waste management of Bandung City

B. Rahardyan, R. Utami (ID)

Material flow analysis of bulky waste in Bandung

D. Dey, I. Krukkert (NL)

Integrated waste management design for the town of Bogura, Bangladesh

10:40 - 11:10 Coffee break

SESSION E4 / 11:10-12:50

INDUSTRIAL WASTE - STRATEGIES AND TREATMENT

Chair / Presidente:

S. Dworak, J. Fellner (AT)

Using Material Flow Analysis to estimate steel scrap quantities and qualities in the EU-28

A. Di Maria, M. Merchan, K. Van Acker (BE)

New strategies for circular economy in the metallurgic industry: an environmental assessment of innovative processes for waste and energy recovery

M. Petranikova, B. Ebin, V. Ssenteza, C. M. Lousada, C. Tunsu (SE)

Selective recovery of molybdenum from steel making dusts

G. Belardi, F. Trapasso, D. Passeri, M. Fedon, P. Micheletti, A. Soluri, A. D'Elia, L. Montagner, D. Zonta (IT)

Stabilization of steelmaking slag based by FMP S.r.l. patent and possible application in concrete production

G. Shiva Kumar, A.K. Nema (IN)

Treatment and management of real-time generated Chromite Ore Processing Residue (COPR) using integrated eco-industrial parks

SESSION F3 / 9:00-10:40

SEWAGE SLUDGE

Chair / *Presidente*:

T. Bauer, L. Ekman Burgman (SE)

Effects of different implementations of sewage sludge disposal legislation in the EU

A. Tsybina, C. Wuensch (RU)

Assessment of the potential of reducing environmental impact at different scenarios for sewage sludge treatment

Y. Zhu, K. Xiao, Y. Zhou, J. Yang, C. Le, D. Lu, Z. Yu, K. Pei, S. Liang (CN)

Profiling of amino acids and their interactions with proteinaceous compounds for sludge dewatering

K. Xiao, Z. Yu, H. Wang, Y. Chen, W. Yu, Q. Xu, B. Liu, H. Hou, S. Liang, J. Hu, J. Yang (CN)

Enhanced sludge dewatering via oxone oxidation activated by iron-rich biochar pyrolyzed from ferric sludge at a low temperature: effects of iron species

10:40 - 11:10 Coffee break

SESSION F4 / 11:10-12:50

SEWAGE SLUDGE AS A RESOURCE

Chairs / *Presidente*:

S. Vaclavkova, V. Kerberová, B. Zach, T. Krejčí, M. Krňávek, P. Malěj, M. Šyc (CZ)

Sewage sludge as an important secondary source for agriculture and phosphorus industry

J. Chen, S. Tang, Z. Zhang (CN)

Novel phosphorus recovery from sewage sludge through calcium oxide-enhanced pyrolysis technique

A. Kolosionis, E. Kastanaki, E. Gidarakos, A. Giannis (GR)

Conversion of sewage sludge to clean fuel using pyrolysis and washing methods

E. Diamandopoulos (GR)

Biochar from sludge

Z. Mei, D. Chen, J. Zhang, L. Yin, Y. Hu (CN)

Integrated continuous sewage sludge pyrolysis-volatile reforming reactor and its performance

TUESDAY OCTOBER 1 MORNING

SESSION G3 / 9:00-10:40

WORKSHOP: RESEARCH ON BLUE TECHNOLOGIES

Chair / *Presidente*: Maria Cristina Lavagnolo (IT)

Introductory lectures:

F. Garbo, M.C. Lavagnolo, R. Cossu (IT)

Unconventional leachate treatment: the use of energy crops

V. Grossule, R. Cossu, M.C. Lavagnolo (IT)

Larvae adaptability to leachate environment: potential treatment options

10:40 - 11:10 Coffee break

SESSION G4 / 11:10-12:50

WORKSHOP: PUBLISHING A PEER-REVIEWED JOURNAL ARTICLE ON WASTE MANAGEMENT: WHAT ARE THE EXPECTATIONS AND WHAT ARE REVIEWERS LOOKING FOR?

Chair / *Presidente*: Umberto Arena (IT)

It is known that, when compared to journal papers, Symposium papers are normally shorter and are structured to attract the attention of Symposium delegates, who need an idea of what the presentation will look like. Therefore, not all symposium papers should be submitted to a scientific journal, and in most cases will require improvements to be considered. Additionally, the restructuring should be done based on the requirements set by specific journals. For this reason, as a special feature of 2019 Edition of Sardinia Symposium, a Workshop is scheduled with the participation of Editors-in chief of some of the main journals in the area of waste management. After introductory presentations by the Editors-in chief, we will have an open discussion with potential Authors and Referees. The focus will be on the characteristics that a journal paper should have (What are the editor and the reviewer looking for in a manuscript? Is the topic within the scope of the journal and of interest for the journal? Journals require novelty: what is new? Are the results robust and transparent?) and what an editor can expect from a reviewer (Why should you do a review? Professional Responsibility, positive attitude and be constructive in comments).

Confirmed speakers:

U. Arena (IT), P.J. He (CN) - Waste Management Journal, Elsevier / *R. Cossu (IT)* - Detritus Multidisciplinary Journal for Waste Resources and Residues, Cisa Publisher / *G. Lyberatos (GR)* - Journal of Hazardous Materials, Elsevier

SIDE EVENT

INTERNATIONAL WORKSHOP ON WASTE ARCHITECTURE / WASTE MANAGEMENT IN LANDSCAPE AND URBAN AREAS



SESSION H3 / 01 OCTOBER 2019 / 9:00-10:40

WASTE ARCHITECTURE: NEW VISIONS AND PERSPECTIVES

Chairs / *Presidenti*: Anna Artuso, Elena Cossu (IT)

E. Cossu, A. Artuso (IT)

New visions for landfill architecture

D.J.M. Marshall (US)

Unmaking architecture: holding patterns for misfit matter

The project provides techniques for arranging materials after the demolition and unmaking of architecture. Rather than down cycling concrete into low value aggregate, melting float glass into opaque bottles or grinding up street trees into mulch, methods are shown for this material to be indexed, remachined and rearranged into new assemblies.

10:40 - 11:10 Coffee break

SESSION H4 / 01 OCTOBER 2019 / 11:10-12:50

FUNCTIONAL REQUALIFICATION OF OLD LANDFILLS: CASE STUDIES AND TECHNICAL ASPECTS

Chair / *Presidente*:

D. Martin, M. Héroux (CA)

Frederic-Back Park, Montreal, Canada: how 40 million tonnes of MSW supports a public park

A. Pederzoli, B.N. Cerqueira, C.A.A. Catapreta, M.C.S. Ribeiro, P.G.B. Heller (BR)

Restoration of sanitary landfills in public park: the case study of Belo Horizonte Landfill, Brazil

S.M. Colombo (IT)

The naturalistic recovery of an old landfill: the case of Vizzolo Predabissi, Milano

K. Haarstad (NO)

Can we build on old landfills?

TUESDAY OCTOBER 1

AFTERNOON

SESSION A5 / CENTRAL HALL / 15:30-17:10

SEPARATE COLLECTION

Chair / Presidente:

E. Civai, F. Cristo, L. Lombardi (IT)

Actual material recovery from the separate collection of municipal solid waste

M. Struk, M. Pojezdná (CZ)

Non-market value of waste separation from municipal perspective

R. Oliveira (BR)

Economic sustainability in solid waste management: critical success factors for Brazil's replication of pay-as-you-throw system

G. De Feo, C. Ferrara, R. Rosania (IT)

Optimizing the cost of separate collection systems: the case study of Salerno

17:10 - 18:00 Coffee break + Poster discussion

SESSION A6 / CENTRAL HALL / 18:00-19:40

SEGREGATION AND COLLECTION

Chair / Presidente:

C. Cord'Homme (FR)

New "material-from-waste" facility in Paris (France)

S. Lee (UK)

A qualitative look at English local authority recycling rates

M. Pamperl, P. Beigl, S. Salhofer (AT)

Is there unutilised resource potential in the Austrian economy? Results of a macro-economic model

R. Kubota, H. Yokoo, E. Kojima, T. Tasaki, I. Utomo (JP)

Transition of community-based waste bank development in Indonesia accelerated by multiple actors' key actions

P. Hennebert (FR)

Sorting of waste for circular economy: sampling when (very) few particles have (very) high concentrations of contaminant or valuable element

SESSION B5 / CENTRAL HALL 2 / 15:30-17:10

LANDFILL GAS GENERATION AND MODELLING

Chair / *Presidente*:

C. Scheutz, A. Kjeld, A.M. Fredenslund (DK)

Methane emissions from Icelandic landfills - A comparison between measured and modelled emissions

R. Lotito, S. Nanda, C. Barbiero, F. Berruti, M. L. Mastellone (IT)

Estimation of H₂S emission from a Canadian landfill site during winter using inverse modelling: a case study

W. H. Stachowitz (DE)

33 years experience of LFG extraction from theoretically gas prognoses to realistic gas extraction systems with LFG2E-energy by CHP units and flares

J. Velasco, F. Maya, D. Solarte, A. Villegas, J. Sanchez (CO)

Case study: biogas to energy project in Cerro Patacón landfill, Panama City, Republic of Panama

H. Yoshida, V. Quang Huy (JP)

Landfill gas and temperature distributions in a closed semi-aerobic landfill with passive aeration system

17:10 - 18:00 Coffee break + Poster discussion

SESSION B6 / CENTRAL HALL 2 / 18:00-19:40

LANDFILL GAS EMISSION MONITORING

Chair / *Presidente*: Susan Thorneloe (US)

A.R. Abidini, J.W. Atwater, K.U. Mayer (CA)

Quantifying fugitive methane emission rates from municipal landfills based on surface methane concentrations

Y.M. Kim, M.H. Park, J.Y. Kim (KR)

Correction of error-inducing factors in an UAV-based measurement system for fugitive methane emission

L. Fjelsted, A. G. Christensen, J.E. Larsen, P. Kjeldsen, C. Scheutz (DK)

Closing the methane mass balance for an old Danish landfill

G. Draughon, J. Lynch, D. Zekkos, S. O'Laughlin (US)

Development of an autonomous flux chamber for continuous methane measurements at MSW landfills

TUESDAY OCTOBER 1

AFTERNOON

SESSION C5 / 15:30-17:10

ANAEROBIC DIGESTION PROCESSES

Chair / Presidente:

T. Yuan, Q. Xu, S. Bian (CN)

Co-production of hydrogen and methane from two-stage food waste anaerobic digestion

S. Önen Cinar, K. Kuchta (DE)

Adaptation of anaerobic digestion process to temperature changes

C. Li, Y. Tao, I. A. Nges, W. Lu (CN)

Impact of continuous leachate recirculation during solid state anaerobic digestion of miscanthus

L. Digan, P. Horgue, G. Debenest, S. Pommier, E. Paul, C. Dumas (FR)

An improved hydrodynamic model for percolation and drainage dynamics in leach bed reactors

17:10 - 18:00 Coffee break + Poster discussion

SESSION C6 / 18:00-19:40

ANAEROBIC DIGESTION OF DIFFERENT SUBSTRATES

Chair / Presidente:

J-C. Frigon, F. Ngoundjo, C. Roy, P. Salama (CA)

Optimization of the operating conditions of a screw press to maximize the biodegradable fraction and methane production in the liquid fraction from fruit and vegetable waste

S. Papirio, G. Mancini, F. Pirozzi, P.N.L. Lens, G. Esposito (IT)

Solvent pretreatment and dosing of trace metals in the anaerobic digestion of rice straw

L.P. Gomes, M.O. Caetano, L.A.S. Miranda, A. Deitos, L.B. Dai-Prá, M.A. Santos (BR)

Evaluation of the treatment of sanitary waste with solid waste of restaurant in UASB reactor

SESSION D5 / PANORAMA HALL 2 / 15:30-17:10

BIOCHAR FROM DIFFERENT RESIDUES

Chair / Presidente:

F.-M. Pellerá, P. Regkouzas, P. Velli, I. Manolikaki, E. Diamadopoulós (GR)

Reuse of waste biomass in biochar production for agronomic and environmental applications: materials characterization

M. Rudakova, P. Galitskaya, S. Selivanovskaya (RU)

Quality of biochar and fuels obtained in the process of slow pyrolysis of chicken manure

C. Keske, T. Godfrey, D. Hoag, J. Abedin (US)

Economic feasibility of biochar production from Canadian black spruce forest residue

S. Tao, J. Yang, H. Hou, S. Liang, K. Xiao, J. Qiu, J. Hu, B. Liu, W. Yu, H. Deng (CN)

Sludge-derived Fe-rich biochar as functional material for enhanced sludge dewatering: towards sustainable sludge recycling in wastewater treatment plant

V.P.R. Batista, S. Melgaço, A. Feitosa, W.G. Teixeira, E. Ritter (BR)

Ammonium sorption for banana peel biochar and soil

17:10 - 18:00 Coffee break + Poster discussion

SESSION D6 / PANORAMA HALL 2 / 18:00-19:40

FLUE GAS TREATMENT

Chair / Presidente:

B. Zach, M. Šyc, M. Pohořelý, J. Moško, J. Brynda, Š. Václavková, K. Svoboda, M. Punčochář (CZ)

Removal of HCl and SO₂ from flue gas on a small scale

X.T. Guo, L.J. Yin, J.Q. Xu, M.Q. Lu, Y.Y. Hu, D.Z. Chen (CN)

Study on competition between SO₂ and HCl in wet flue gas deacidification

H. Zhang, L.M. Shao, P.J. He (CN)

Inhibiting formation of chlorobenzenes by NH₄H₂PO₄ during incineration

S. Andersson, P. Lindgren (SE)

Upgrading flue gas treatment systems for the new waste incineration BREF

TUESDAY OCTOBER 1

AFTERNOON

SESSION E5 / 15:30-17:10

INDUSTRIAL WASTE - RECOVERY OPTIONS

Chair / Presidente:

J.D. Carlier, S. Sathityatiwat, A.B. Melka, M.G. Miguel, J.P. Lourenço, C.A. Nogueira, A.P. Paiva, M.C. Costa (PT)

Combining chemical and biological strategies for the recovery of metals from metals bearing wastewaters (METALCHEMBIO project)

N. Stahre, M. Bäckström, L. Sartz (SE)

Element leaching from green liquor dregs from 16 Swedish paper mills

T. Niemelin, T. Suikkanen, H. Jyrävä, N. Lindroos, M. Autiola, M. Helaakoski, A. Nassinen, J. Österbacka, A. Kulmala, A. Virtanen, M Hänninen, P. Rantala (FI)

Industrial by-products in environmental protection structures in mine construction

A. Taskin, S. Ivannikov, O. Danilov, O. Elkin, D. Fedotov (RU)

Recovery of coal underburning from industrial ash and slag waste

M. Marafi, M.S. Rana (KW)

Extraction of metals from spent hydrotreating catalysts using chelating agent: preliminary process design and feasibility

T.S. Leme, S.R. Teixeira, L.S. Silva, R.S. Magalhães, L.F. Santos, G.T.A. Santos, A.E. Souza (BR)

Crystallization kinetics of glasses prepared with foundry slag

17:10 - 18:00 Coffee break + Poster discussion

SESSION E6 / 18:00-19:40

WORKSHOP: INDUSTRIAL WASTE MANAGEMENT AND CIRCULAR ECONOMY

Chairs / Presidenti: Evangelos Gidarakos, Maria Aivalioti (GR)

The inadequate management and disposal of industrial waste has been identified historically and continues to be so today under some conditions, particularly in developing countries, as a cause underlying severe environmental impacts, both in terms of air pollution, water quality degradation, and soil contamination. However, over time, waste has come to be viewed more and more as a valuable resource for industry, and in the same way as municipal waste, industrial waste has now been included in the urban mining concept.

The scope of this workshop is to present industrial waste management under the prism of circular economy, focusing on emerging opportunities & benefits, as well as difficulties & restrictions.

Introductory lectures:

E. Gidarakos (GR): Industrial waste management: current situation and problems

M. Aivalioti (GR): Adoption of circular economy in industrial waste management

M. Aivalioti, F.-M. Peller, E. Gidarakos (GR): A circular economy of critical raw materials

SESSION F5 / 15:30-17:10

WORKSHOP: LANDFILL MINING - MYTH AND REALITY I

Chairs / *Presidenti*: Claudia Neculau, Marta Popova (BE)

During the two workshop sessions, the partners of both EU-funded projects (RAWFILL and SMART GROUND) will emphasize the necessity of broad data collection in order to redesign the traditional risk-based landfill management into a dynamic resource supplying system. The inventory of landfills will be explained in relation to a comprehensive Conceptual Site Model taking into account cross-cutting policies such as sustainable development goals, climate change and land management as well as resource recovery through landfill mining opportunities.

Introductory lectures:

M. Popova (BE): Introduction to landfill mining

C. Neculau (BE), F. Coulon (UK): Scope and focus of Smart Ground and Rawfill

E. Wille (BE): Data mining as first step of landfill mining

C. Neculau (BE): Overview of critical factors for landfill mining projects – Drivers, health and safety measures

D. Caterina (BE): Landfill investigation by using geophysical prospection multi-methods

R. De Rijdt (BE): Landfills and their environment (threats and opportunities measured through RAWFILL Enhanced Landfill Inventory Structure)

E. Wille (BE): Stepwise Decision making (ranking, categorizing, time management)

E. Wille (BE): Dynamic Landfill Management as innovative concept. Decision support tools : RAWFILL DST phase I – linkage to SMARTGROUND DST

Landfill Mining case studies: lesson learnt

C. Neculau (BE): The landfill of Onoz (Jemeppe-sur-Sambre, BE) and the Green deal

F. Coulon (UK): Landfill Mining & Reclamation at Sandford Farm (Reading, UK)

S. Wagland (UK): Energy recovery opportunities from landfill mining

E. Wille (BE): Brownfield redevelopment and LFM: 5 landfills but 5 different projects

17:10 - 18:00 Coffee break + Poster discussion

SESSION F6 / 18:00-19:40

WORKSHOP: LANDFILL MINING - MYTH AND REALITY II

Chairs / *Presidenti*: Claudia Neculau, Marta Popova (BE)

Interactive session with participants about RAWFILL DST phase II - Dr. eng. Claudia Neculau (BE), Prof. Frederic Coulon (UK), Eddy Wille (BE), Eng. Renaud De Rijdt (BE), Dr. Stuart Wagland (UK), Dr. David Caterina (BE)

TUESDAY OCTOBER 1

AFTERNOON

SESSION G5 / 15:30-17:10 / ITALIAN SESSION

WORKSHOP: POST-GESTIONE DELLE DISCARICHE I

Chair / *Presidente*: Fabrizio Finotelli (IT)

Relazioni introduttive:

F. Finotelli (IT)

Gestione post-operativa (GPO) di discariche per RSU c.d. moderne di prima generazione (ante D. Lgs. 36/2003 e post D.C.I. 27/7/1984). L'attualità di criticità ambientali (in)aspettate derivanti dalla sotto-stima della durata della GPO

P. Ferraris (IT)

GPO: la normativa rilevante e la sua evoluzione. Casi giurisprudenziali

E. Confalonieri (IT)

GPO: esperienze e indirizzi della Regione Lombardia

F. Finotelli (IT)

Il decorso degli assestamenti in discariche in fase di gestione operativa e post-operativa: case histories, con valutazioni sullo stato d'avanzamento/durata della gestione post-operativa (GPO) e relative problematiche

17:10 - 18:00 Coffee break + Poster discussion

SESSION G6 / 18:00-19:40 / ITALIAN SESSION

WORKSHOP: POST-GESTIONE DELLE DISCARICHE II

Chair / *Presidente*: Fabrizio Finotelli (IT)

Relazioni introduttive:

A. Angeloni, P. Simone (IT)

Discariche ante norma e cessate. Problema amministrativo o ambientale?

F. Finotelli (IT)

Le discariche orfane. Un caso reale di GPO di carattere emergenziale, con attivazione di procedure sostitutive da parte della P.A. in danno al gestore. Aspetti tecnici, procedurali ed economici

D. Biondi (IT)

Discarica in post gestione: una risorsa o solo un costo?

SIDE EVENT
INTERNATIONAL WORKSHOP ON WASTE
ARCHITECTURE / WASTE MANAGEMENT
IN LANDSCAPE AND URBAN AREAS



SESSION H5 / 01 OCTOBER 2019 / 15:30-17:10

IWRECKS - Industrial Wrecks: Reusing, Enhancing, aCKnowledging Sheds

Chair / *Presidente*: Stefanos Antoniadis (IT)

iWrecks is a research project funded by POR FSE 'Veneto' 2014-2020. iWrecks aims to provide innovative visions and operational tools to professionals, investors, stakeholders and citizens involved in the retraining of abandoned, decommissioned and dismissed industrial sheds. In Veneto a huge amount of industrial estate demands for new uses. An important part of the research programme concerns useful practices for the recognition of what really must be reduced to waste and what can instead be maintained, transformed, reinterpreted avoiding the threatening obsolescence. The multidisciplinary approach of the research project, as well as the dedicated slot, helps the actors, involved in the production industry of reuse, in the pursuit of the goals of significant demolition reduction – so waste reduction – and programmatic practices of circular economy

Introductory lectures:

L. Stendardo (IT)

The power of the wreck: orienting visions

S. Antoniadis (IT)

iWrecks pilot scenarios: reducing waste and avoiding the threatening obsolescence in Architecture

R.A. Bernardello, R. Malesani (IT)

BIM and Urban Mining: information models for the C&D waste management and computation

17:10 - 18:00 Coffee break + Poster discussion

SESSION H6 / 01 OCTOBER 2019 / 18:00-19:40

WASTE MANAGEMENT IN URBAN AND PERI-URBAN AREAS

Chair / *Presidente*:

E.W. Rutkowski, E.Z. Monteiro, R.A. Freire, A.M. Reis de Goes Monteiro (BR)

Acknowledging waste pickers cooperatives as prime urban facilities

J. Zeilinger, M. Huber-Humer (AT)

Sustainable temporary housing in urban areas - The role of waste resource management

M. Russo, L. Amenta, A. Attademo, M. Cerreta, E. Formato, F. Garzilli, C. Mazzarella, M. Rigillo, V. Vittiglio (IT)

Short supply chain of waste flows for landscape regeneration in peri-urban areas

DAY 3 / WEDNESDAY
OCTOBER 2

WEDNESDAY OCTOBER 2

MORNING

SESSION A7 / CENTRAL HALL / 9:00-10:40

CIRCULAR ECONOMY

Chair / *Presidente*:

A. Bartl (AT)

The EU circular economy package: are new paths being taken or is it an old story?

E. Schmied, G. Obersteiner (AT)

Re-use in practical implementation. A long lasting case study in Austria with direct impact to circular economy

J. Slavík, K. Rybová (CZ)

Recycling behavior and its relevance in increasing the effectiveness of waste management strategies - The case study of the Czech Republic

M. Pamperl, P. Beigl, S. Salhofer (AT)

Secondary resource price as a key factor in the circular economy – Analysis of drivers of supply and demand within the recycling sector

K. Friedrich, S. Holzschuster, D. Vollprecht (AT)

Benchmark analysis for different recyclates in the Austrian waste management

C. Neculau, R. De Rijdt, E. Wille and the RAWFILL team (BE)

RAWFILL Project: innovative characterization of landfills and smart decision-making as part of the circular economy, through landfill mining operations

10:40 - 11:10 Coffee break

SESSION A8 / CENTRAL HALL / 11:10-12:50

POLICIES IN PLASTICS MANAGEMENT

Chair / *Presidente*:

R. Maletz (DE)

Calculation of eco-efficiencies of different actions increasing substitution rates of plastic material

A. Brock, I. Williams (UK)

Life cycle assessment of drinks packaging: are there environmentally-friendly alternatives to plastics?

E. Verdejo, E. Moliner, S. Albein Urios (ES)

Circular economy of commercial plastic packaging in urban environments - LIFE RECYPACK

C. Peñalva, M. Pérez, F. Braca, D. Redondo (ES)

Reducing the effects of plastic waste in agricultural applications by developing new OK soil biodegradable plastics

SESSION B7 / CENTRAL HALL 2 / 9:00-10:40

METHANE OXIDATION IN BIOFILTERS AND BIOCOVERS

Chair / Presidente:

R. Rosendal, H. Rolsted, O. Elmoose (DK)

Mitigation of methane emissions in an active biofilter system at Glatved landfill, Denmark

D. Huang, L. Yang, Q. Xu (CN)

Methane-oxidizing capacities of biochar-amended landfill cover soil

M. Kriipsalu, K.-M. Pehme, K. Orupõld, V. Kuusemets, M. Truu, J. Truu, H. Nõlvak (EE)

Performance of methane degradation layer of Kudjape landfill during the four years following to the closure

J. Gebert, C.J.W. Van Verseveld, H.P.W. Blom, T.J. Heimovaara (NL)

Effect of compaction and moisture on gas diffusivity and conductivity of soils for use in methane oxidation systems

L. Fjelsted, A.G. Christensen, J.E. Larsen, P. Kjeldsen, C. Scheutz (DK)

Biofiltration of dilute landfill gas in an active loaded open bed compost filter

10:40 - 11:10 Coffee break

SESSION B8 / CENTRAL HALL 2 / 11:10-12:50

EMERGING CONTAMINANTS IN LANDFILL LEACHATE

Chair / Presidente:

H. Modin, P. Hallgren, A. Roslund, N. Törneman (SE)

PFAS in Swedish landfill leachate

N. Simmons (AU)

PFAS concentrations of landfill leachates in Victoria, Australia – Implications for discharge of leachate to sewer

S. Harrad, D. Drage, M. Sharkey, H. Berresheim (UK)

Concentrations of polybro-minated diphenyl ethers, hexabromocyclododecane, and perfluoroalkyl substances in landfill leachate from Ireland

M. Van Praagh, B. Liebmann (SE)

Microplastics in landfill leachates in Iceland, Finland and Norway

F. Garbo, A. Pivato, B. Manachini, M.C. Lavagnolo (IT)

Assessment of the ecotoxicity of phytotreatment substrate soil as landfill cover material for in situ leachate management

N.M. Lanzarini, R.M. Mata, C.F. Mannarino, J.C. Moreira, M.P. Miagostovich (BR)

Detection and quantification of viruses in solid waste landfill leachate

WEDNESDAY OCTOBER 2

MORNING

SESSION C7 / PANORAMA HALL / 9:00-10:40

CO-DIGESTION OF DIFFERENT SUBSTRATES

Chair / *Presidente*:

I. Pecorini, E. Albin, R. Iannelli, G. Ferrara (IT)

Comparison of one stage and two-stage anaerobic co-digestion process of food waste and activated sludge

C. Urtnowski-Morin, M. Héroux, L. Spreutels, R. Legros (CA)

Simulation of the impact of co-digesting municipal organic waste from different streams

M. Carchesio, M. Di Addario, F. Tatàno, S. de Rosa, A. Gambioli (IT)

Biochemical methane potential of residual organic waste and MBT organic outputs

10:40 - 11:10 Coffee break

SESSION C8 / PANORAMA HALL / 11:10-12:50

QUALITY ASSESSMENT OF BIOSTABILIZED WASTE

Chair / *Presidente*:

A. Lieto, I. Chiapperini, I. Verginelli, D. Zingaretti, F. Lombardi (IT)

Screening model for the evaluation of the metal release from biostabilized wastes

L. Gomes, I. Becker, M. Caetano, L. Miranda, P. Ghelsa, L. Rosa, M. Grandó (BR)
Anaerobic digestion of organic waste: analysis of the biofertilizer generated

E. Albin, I. Pecorini, R. Iannelli, G. Ferrara (IT)

Effect of two stage anaerobic digestion process on digestate stability

J.E. Sánchez-Ramírez, L. Pastor, S. Doñate, E. Aymerich, M. Esteban-Gutiérrez, J. Garcia-Aguirre, R. Romaguera, C. Lardin, E. Mino (ES)

Implementation of dry anaerobic digestion of sewage sludge in small and medium WWTP

G. Beggio, A. Pivato (IT)

Solid-liquid separation of OFMSW digestate through chemical conditioning

SESSION D7 / PANORAMA HALL 2 / 9:00-10:40

CHARACTERIZATION AND TREATMENT OF BOTTOM ASH

Chair / *Presidente*: Susan Thorneloe (US)

J. Kumpiene, I. Carabante, I. Tjerngren, P. Peltola (SE)

Leaching properties of stabilized waste in a simulated deep storage environment

S. K. Back, K. Ueda, M. Ueshima, M. Nakagawa, H. Sakanakura (JP)

Estimation of element distribution in MSW incinerator bottom ash by size and density applying air table separator

G. Flesoura, B. Garcia-Banos, J.M. Catala-Civera, G. Dimitrakis, J. Vleugels, Y. Pontikes (BE)
Microwave processing of municipal solid waste incinerator bottom ash

M. Šyc, J. Výravský, H. Muniz, S. Bhattarai, E. Korotenko, B. Zach (CZ)

Fe, Cu, Al, and Zn content and chemical speciation in incineration bottom ash fine fraction

R. Spagnuolo, G. Costa, L. Lombardi (IT)

Combined treatments for improving the leaching behaviour of the mineral fraction of waste incineration bottom ash in view of recycling

Y. Tang, W. Ma, Y. Xia (CN)

Co-immobilization mechanisms of lead, zinc, copper in low-temperature glass-ceramics from sewage sludge incineration residues

10:40 - 11:10 Coffee break

SESSION D8 / PANORAMA HALL 2 / 11:10-12:50

RECYCLING OF BOTTOM ASH

Chair / *Presidente*:

D. Blasenbauer, F. Huber, J. Fellner (AT)

Bringing light into the legal jungle of incinerator bottom ash utilisation in the EU, Norway and Switzerland

J. Hůšťavová, P. Šebestová, V. Černý, R. Drochytka (CZ)

Possibilities of using hazardous waste in the technology of autoclaved aerated concrete

P. Rabelo Monich, H. Lucas, B. Friedrich, M. Segata, A. Morbi, E. Bernardo (IT)

Upcycling of vitrified residues by alkali activation and sinter-crystallization

F. Huber, D. Blasenbauer, P. Aschenbrenner, J. Fellner (AT)

Generating a knowledge base for the sustainable utilisation of MSWI bottom ash

L. Taddei, M. Marcantoni, R. Usci, M. Molica Colella, A. Sconfiatti (IT)

LIFE-CHIMERA - CHICKENS Manure Exploitation and Revaluation: turning combustion ashes into a rich N-P-K fertilizer

A.M. Doyle, I.V. Joseph, D. Shaw, L. Tosheva (UK)

Transformation of waste materials used in electricity generation to high surface area zeolites

WEDNESDAY OCTOBER 2

MORNING

SESSION E7 / 9:00-10:40

CONTAMINATED SITES

Chair / *Presidente*:

O. Solcova, J. Bumba, M. Spacilova, F. Kastanek (CZ)

Brownfield water pollution and purification

M.-L. Wei, Y.-J. Du, Q. Xue (CN)

Effect of carbonation on leaching properties of Zn and Pb-contaminated soils stabilized with KMP: semi-dynamic leaching test evaluation

A. Ribeiro, A. Mota, J. Araújo, J. Carvalho (PT)

Development of a pilot-scale prototype for electrokinbarrier technology

X. Kong, H. Wang (CN)

Removal of vanadium from groundwater by layered double hydroxide supported nanoscale zerovalent iron

10:40 - 11:10 Coffee break

SESSION E8 / 11:10-12:50

WASTE MANAGEMENT EDUCATION

Chair / *Presidente*:

G. De Feo, F. Faiella (IT)

Waste management education: from kindergarten to higher education

K. Manskinen, A.-M. Tuomala, G. Azimbayeva (FI)

Opportunities and challenges in developing a waste management curriculum in Kazakhstan

S. Lee, A. Reid, C. Banks (UK)

An Erasmus+ waste education initiative

C.C. Guimarães, T.F. Oliveira, F.P. Manéo, L.S. Macedo, C.E. Teixeira (BR)

Environmental education and popular mobilization for the implementation of integrated waste management systems

M. Dassisti, A. Di Roma, B. D'Aquino (IT)

Implicit teaching approach to the 6R paradigm for sustainability: the secondary-matter teller machine at high schools

SESSION F7 / 9:00-10:40

WORKSHOP: WASTE AND CLIMATE CHANGE I

Chair / *Presidente*: Cristina Trois (ZA)

The main scope of this workshop is to explore the nexus between waste management and climate change as a global challenge and in the context of international imperatives, sustainable development goals and the dichotomy between the Global North and Global South with respect to both mitigation and adaptation viewpoints. The first part of the workshop will deal with the impacts of waste on climate change and the most appropriate mitigation strategies.

Introductory lectures:

C. Trois (ZA)

Waste and climate change

M.C. Lavagnolo (IT)

Impacts of open burning in developing countries and mitigation solutions

C. Wunsch, R. Kocina (DE)

Global development of greenhouse gas emissions in the waste management sector

10:40 - 11:10 Coffee break

SESSION F8 / 11:10-12:50

WORKSHOP: WASTE AND CLIMATE CHANGE II

Chair / *Presidente*: Cristina Trois (ZA)

The second part of the workshop will deal with impacts of climate change on the waste sector from the adaptation point of view, including (i) how changing climates are affecting waste, (ii) risks of disaster waste and intervention strategies, (iii) drought impacts on waste composition, (iv) community displacement and waste.

Introductory lectures:

M. Klinglmair, M. Thomsen (DK)

Climate change mitigation services rendered by organic-waste-derived fertilizer: a dynamic model of a Danish case study

S. Nilsson Påledal, M. Gålfalk, D. Bastviken (SE)

Quantification and reduction of greenhouse gas emissions from storage of de-watered sludge at waste water treatment plants

WEDNESDAY OCTOBER 2

MORNING

SESSION G7 / IN ITALIANO / 9:00-10:40

ASPETTI LEGALI NELLA GESTIONE DEI RIFIUTI

Chair / *Presidente*:

M. Chianura (IT)

Necessità di una legislazione ambientale uniforme per la tutela del Mar Mediterraneo

B. Orrico (IT)

Bonifica del bacino idrografico del fiume Sarno

10:40 - 11:10 Coffee break

SESSION G8 / IN ITALIANO / 11:10-12:50

SISTEMI INTEGRATI E DECENTRALIZZATI PER LA GESTIONE DEI RIFIUTI

Chair / *Presidente*:

A. Pivato, A. Schievano, R. Malesani, M.C. Lavagnolo (IT)

La tecnologia del termocompost come alternativa sostenibile per la produzione di calore in edifici decentralizzati

M. Canditelli, C. Cellamare, P.G. Landolfo, S. Manzo, M.R. Montereali, F. Musmeci, A. Salluzzo (IT)

Il compostaggio a piccola scala: "un sistema green" per il trattamento e recupero della frazione organica

M. Stacchini (RSM)

Gli scarti faranno rinascere il titano - Progetto per la gestione sostenibile dei rifiuti e delle acque reflue attraverso sistemi di economia circolare nella Repubblica di San Marino

SIDE EVENT
INTERNATIONAL WORKSHOP ON WASTE
ARCHITECTURE / WASTE MANAGEMENT
IN LANDSCAPE AND URBAN AREAS



SESSION H7 / 9:00-10:40

DESIGN LAB

Chair / Presidente: Anna Artuso, Elena Cossu, Stefanos Antoniadis (IT)

On 2nd October a practical landscape design lab session will be coordinated by Studio Arcoplan with the collaboration of Raffaello Cossu, Professor of the University of Padova and Stefanos Antoniadis, research fellow at the University of Padova.

The laboratory will be preceded by an introductory lecture on the topic. The lab session will give participants the opportunity to share their views with colleagues and experts within their working groups on a real case study.

The participants will elaborate a concept for the valorisation and/or requalification of the plant proposed and will be invited to illustrate the final project at the end of the laboratory.

Two case studies, selected by the Scientific Committee among the numerous proposals received, will be evaluated and assessed during the planning and design workshop.

The selected proposers will present the case studies to participants, illustrating the specific details of the plant, any issues that need solving, and basic requirements or preferences to allow the planning and design team to draw up the best solution in terms of site requalification or functional reuse.

The proposers are Ecoserdiana Spa and Ecofer Ambiente Srl.

10:40 - 11:10 Coffee break

SESSION H8 / 11:10-12:50

DESIGN LAB

In session H8 the activity started in the previous session will be continued.

WEDNESDAY OCTOBER 2

AFTERNOON

SESSION A9 / CENTRAL HALL / 15:30-17:10

PLASTIC WASTE - RECYCLING TARGETS AND CONTAMINATION

Chair / *Presidente*:

E. Van Eygen, J. Fellner (AT)

How can the ambitious recycling targets for plastic packaging be reached and what are the ecological and economic consequences – Insights from Austria

A. Alassali, K. Kuchta (DE)

Evaluation of the degree of contamination of recycled plastics

S. Möllnitz, K. Khodier, R. Pomberger, R. Sarc (AT)

Grain size dependent distribution of plastic types in coarse-shredded mixed municipal solid waste

A. Alassali, T. Bébien, D. Barouta, K. Kuchta (DE)

The impact of new regulations on the recycling quota of plastics from waste electrical and electronic equipment

17:10 - 18:00 Coffee break + Poster discussion

SESSION A10 / CENTRAL HALL / 18:00-19:40

MATERIALS RECOVERY

Chair / *Presidente*:

A. Mrotzek-Bloess, A. Haas, D. Goldmann, J. Nuortila-Jokinen, J. Kulczycka, M. Smol, E. Pędziwiatr, M. Petranikova, B. Ebin (DE)

On the way to a circular economy: obstacles and challenges in the metal value chain

R. Warrings, J. Fellner (AT)

New recycling targets for aluminium packaging - A comparison of waste management strategies in selected European member states

B. Ebin, L. Bauhn, M. Tao, B.-M. Steenari (SE)

Recovery of silver from flexible thin-film solar panels

M. Borzęcka, A. L. Fernando, J. Costa, D. Boulday, P. Antoine, M. Cocchi, L. Bern, H. Forsgren, L. Detterfelt, K. Supancic, M. Marinova (PL)

European wood waste platform - Best practices in wood waste management

R. Oliveira (BR)

Intelligent reverse logistic: case study on glass recovery in São Paulo

SESSION B9 / CENTRAL HALL 2 / 15:30-17:10

LEACHATE FROM SPECIFIC WASTE

Chair / *Presidente*:

N.L. Ho, H. Tamura, T. Komiya, T. Shimaoka (JP)

Effect of heavy rain due to climate change on leaching behavior of landfill with municipal solid waste incineration bottom ash

M. Abis, G. Bido, R. Raga, M. Ritzkowski, K. Kuchta, B. Walker (DE)

Landfilled bottom ash characterisation and assessment of leachate properties in a long-term scenario

J. Qiu, F. Lü, H. Zhang, W. Liu, J. Chen, Y. Deng, L. Shao, P. He (CN)

Molecular characteristics of DOM in municipal solid waste leachate from a perspective of chemodiversity

M. Marchesi, L. Alberti, O. Shouakar-Stash, R. Aravena, M. Caschetto (IT)

Iso-topo tools in forensics and groundwater quality impact assessment of landfills and contaminated sites: results from EU case studies

17:10 - 18:00 Coffee break + Poster discussion

SESSION B10 / CENTRAL HALL 2 / 18:00-19:40

LEACHATE TREATMENT

Chair / *Presidente*:

H. Robinson, I. Hopewell, A. Brooks, J. Olufsen, T. Robinson (UK)

Full scale treatment of strong, methanogenic leachates, with full nitrification and denitrification, at Bletchley landfill site, UK

S. Dever, J. Gray, M. Winser (AU)

Design, construction, and commissioning of the Kimbriki landfill leachate treatment plant: an Australian case study

T. Robinson, T. Burton (UK)

Treatment of landfill leachate at a remote closed landfill site on the Isle of Wight

T. Saur, E. Wong, J.C. Alibar, E. Ip, O. Oberti, B. Barillon (FR)

Deammonification as a low opex biological treatment of nitrogen in mature leachates

R. Eden, M. Moulden, J. Westwood, T. Thomas (UK)

Waste-heat driven thermal ammonia stripping as a means of ammoniacal nitrogen control

WEDNESDAY OCTOBER 2

AFTERNOON

SESSION C9 / PANORAMA HALL / 15:30-17:10

EMISSIONS FROM ANAEROBIC DIGESTION PLANTS

Chair / *Presidente*:

V. Wechselberger, M. Huber-Humer, K. Meixner, L. Knoll, M. Hrad (DE)

Evaluation of methane emissions from different Austrian biogas plants using harmonized methods including an open-path technology

P. Dirrenberger, J. Grosjean, N. Monta, T. Nicot, J. Kunz-Iffli, C. Coulais, V. Koehler, A. Pedros, B. Facon (FR)

Occupational exposure to bioaerosols and ammonia in anaerobic digestion units

Y. Shao, X. Liu, L. Xu, Z. Li (CN)

The characteristic of odor gas produced from different components of wastes: a degradation experiment inoculated pure bacteria

G. Francini, M. Lasagni, L. Lombardi (IT)

Selection of the biogas upgrading technology for an Italian MSW anaerobic digestion plant

17:10 - 18:00 Coffee break + Poster discussion

SESSION C10 / PANORAMA HALL / 18:00-19:40

COMPOSTING

Chair / *Presidente*:

R. Sherman (US)

Large-scale vermicomposting around the world: using earthworms to recycle waste into valuable products

S. Balasubramanian, M. Kranert, L. Philip (DE)

Implementation of composting in Chennai, India

K. Orupõld, I. Tust, M. Kriipsalu (EE)

Compost quality assurance in Estonia: evaluation of compost stability

SESSION D9 / PANORAMA HALL 2 / 15:30-17:10

CHARACTERIZATION AND TREATMENT OF FLY ASH

Chair / *Presidente*:

E. Korotenko, M. Šyc, J. Jadrný, P. Mašín, P. Krystyník, P. Klusoň (CZ)

Resource recovery potential of MSWI fly ash acid extraction

T. Karlsson, B. Ebin, B.-M. Steenari (SE)

Stabilization of antimony and lead in municipal solid waste incinerator fly ash by controlled metal extraction and complexation reactions

Y. Tojo, Y. Itoga, M. Kobori, T. Matsuo, T. Matsuto (JP)

Insolubilization of cesium contained in fly ash by aluminosilicate

L. Tong, Q. Hu, Y. Tang, F. Wang, B. Hu (CN)

Validation of the BCR sequential extraction procedure for metals fractionation in municipal solid wastes incineration fly ash

17:10 - 18:00 Coffee break + Poster discussion

SESSION D10 / PANORAMA HALL 2 / 18:00-19:40

WORKSHOP: ECONOMICS OF WASTE

Chair / *Presidente*: Jan Slavik (CZ)

The main aim of the workshop is to increase awareness about the scientific contribution of social sciences (especially economics) to the current waste management research. We will provide information about the usefulness of economics, including its applications, in the waste management research and how economics can support the research based on other scientific approaches. Furthermore, the role of economics in the current waste management policy of the European Union will be emphasized, with a focus on circular economy.

Introductory lectures:

J. Slavik (CZ)

Introduction to economics of waste

M. Struk (CZ)

Economics of waste in the current environmental policy

WEDNESDAY OCTOBER 2

AFTERNOON

SESSION E9 / 15:30-17:10

WORKSHOP: IWWG TASK GROUP CLEAR - CONSTRUCTION AND OPERATION OF FULL-SCALE CH₄ OXIDATION SYSTEMS

Chairs / *Presidenti*: Julia Gebert (NL), Marion Huber-Humer (AT)

During the past years the first full-scale methane oxidation systems have been implemented to reduce landfill methane emissions, benchmarking the transition from research and pilot scale to full field application. Scaling up entails challenges, for example with respect to the desired evenness of spatial gas distribution in the gas distribution layer, construction methods to attain evenness of soil physical and mechanical properties or full system performance assessment. The pending development of best available technology (BAT) documents for methane oxidation systems should consider these experiences.

The main purpose of the workshop is therefore to discuss strengths and pitfalls of full-scale engineered methane oxidation systems. Pitches will be given by invited speakers who will share concrete aspects of construction, operation, performance and monitoring of their respective systems. As main outcome it is intended to compile a document addressing the key challenges of construction, operation and monitoring of full-scale CH₄ oxidation systems.

Introductory lectures:

C. Scheutz, P. Kjeldsen (DK): Challenges in the up-scale to full bio-mitigation systems implemented at landfills and future research needs

R. Rosendal, M. Holt, H. Rolsted, S.B. Andersen (DK): Implementation of full-scale biocover systems - Site investigation, design and monitoring

A. Fredenslund, K.B. Sundbaek, P.H. Petersen (DK): Biocovers on landfills - Variations in project complexity

A.R. Cabral, B. Ahoughalandari (CA): Elements of design of passive methane oxidation biosystems - Fundamental and practical considerations about hydraulic characteristics affecting biogas migration and oxidation efficiency

M. Huber-Humer (AT): Biowindows for the degasification of an older Austrian MSW landfill after the removal of the active gas extraction system - Lessons learned

J. Gebert, J. Streese-Kleeberg (NL): Experiences from full scale operation of methane oxidation windows for biological treatment of landfill gas

17:10 - 18:00 Coffee break + Poster discussion

SESSION E10 / 18:00-19:40

WORKSHOP: HYDROTHERMAL CARBONIZATION

Chair / *Presidente*:

Introductory lectures:

M. Nelles, M. Klemm, J. Köchermann, T. Lühmann (DE): Status and prospects of hydrothermal carbonization (HTC) for biogenic waste and residues

M.L. Mastellone, L. Zaccariello, R. Lotito, D. Battaglia (IT): An experimental study on hydrothermal carbonization of anaerobic digestion residue

SESSION F9 / 15:30-17:10

WORKSHOP: SEMIAEROBIC LANDFILLING IN DEVELOPING COUNTRIES

Chairs / *Presidenti*: Maria Cristina Lavagnolo (IT), Yasushi Matsufuji (JP)

What is the semi-aerobic landfill? Why to apply in DCs? What pro & cons? The semiaerobic landfill will be explained directly by the researchers of the Fukuoka University, where the system was invented and now applied in many countries all over the world. During this workshop advantages and drawbacks of semiaerobic landfill will be pointed out and some applications will be illustrated and discussed.

Introductory lectures:

M.C. Lavagnolo (IT): Findings in semi-aerobic landfilling

Y. Matsufuji, A. Tanaka (JP): Transfer of Appropriate Technology by Semi-aerobic Landfill Concept (Fukuoka Method) in DCs

T. Mito, Y. Matsufuji (JP): Application of semi-aerobic landfilling in developing countries - Lessons learned through its application in Rwanda and other African countries

V. Grossule, M.C. Lavagnolo (IT): Optimised management of semi-aerobic landfilling under tropical wet-dry conditions

17:10 - 18:00 Coffee break + Poster discussion

SESSION F10 / 18:00-19:40

WORKSHOP: ASBESTOS WASTE MANAGEMENT AND RISK ASSESSMENT

Chairs / *Presidenti*: Giuseppe Bonifazi, Silvia Serranti (IT)

The Workshop will represent an opportunity to discuss some critical aspects of asbestos containing materials and waste management.

Introductory lectures:

F. Paglietti (IT): Classification and properties of asbestos containing waste

S. Malinconico (IT): Safety measures and waste management at naturally occurring asbestos (NOA) sites

B. Conestabile Della Staffa (IT): The disposal of asbestos containing waste (ACW) in Italy

G. Bonifazi (IT): New technologies for identification and classification of asbestos

S. Serranti (IT): Hyperspectral imaging for asbestos recognition

M. Musacchio, L. Colini, M. Silvestri, M.F. Buongiorno (IT): Asbestlib: a spectral library of MCA to support environmental monitoring activities

A. Valouma, E. Gidarakos (GR): Mechanical treatment of asbestos containing waste and safe recycling on the production of alkali activated materials

T. Sattler, R. Pomberger, J. Schimek, D. Vollprecht (AT): Mineral wool waste in Austria, associated health aspects and recycling options

WEDNESDAY OCTOBER 2

AFTERNOON

SESSION G9 / IN ITALIANO / 15:30-17:10

L'ECONOMIA CIRCOLARE NELLA GESTIONE DEI RIFIUTI

Chairs / Presidenti:

G.C. Faussonne (IT)

Il recupero dei rifiuti plastici marini e terrestri tramite pirolisi: una nuova prospettiva per il riciclo chimico

F. Asunis, M.P. Boni, A.P. Brundu, G. Cappai, A. Carucci, F.G. Cocco, G. De Gioannis, M. Isipato, S. Milia, A. Muntoni, A. Polettini, R. Pomi, A. Rossi, D. Spiga (IT)

Processo in tre fasi per la produzione di idrogeno e PHA da siero di latte ovino

C. Oggeri, P. Simone, M. Maroni, M. Scudu, G. Ansinello (IT)

Attività sperimentali per la caratterizzazione geotecnica di sfridi di lavorazione di guarnizioni O-ring per utilizzo in strutture di copertura di discarica

A. Di Maria, M. Merchan, K. Van Acker (IT)

Strategie per l'economia circolare nell'industria metallurgica: un'analisi ambientale di processi innovativi per il recupero di materiali ed energia

17:10 - 18:00 Coffee break + Poster discussion

SESSION G10 / 18:00-19:40

WORKSHOP: END OF WASTE

Chairs / Presidenti: Raffaello Cossu, Alberto Pivato (IT)

Introductory lecture:

A. Pivato (IT)

The end of waste issue

SIDE EVENT
INTERNATIONAL WORKSHOP ON WASTE
ARCHITECTURE / WASTE MANAGEMENT
IN LANDSCAPE AND URBAN AREAS



SESSION H9 / 15:30-17:10

DESIGN LAB

Chairs / *Presidenti*:

In session H9 the activity started in sessions H7 and H8 will be continued.

17:10 - 18:00 Coffee break + Poster discussion

SESSION H10 / 18:00-19:40

DESIGN LAB

Chair / *Presidente*:

At the end of the design lab, the participants will produce a concept for the valorisation and/or requalification of the plant proposed and will be invited to illustrate and discuss the final project.

DAY 4 / THURSDAY
OCTOBER 3

THURSDAY OCTOBER 3 MORNING

SESSION A11 / CENTRAL HALL / 9:00-10:40

AUTOMOTIVE SHREDDER RESIDUES

Chair / Presidente:

M. Sarkkinen, K. Kujala, S. Gehör (FI)

Recycling of automotive shredder residue (ASR) waste in concrete for environmental and infrastructural construction applications

D. Panepinto, B. Ruffino, M.C. Zanetti (IT)

Evaluation of automotive shredder residues thermal valorization

Y. Belyakov, V. Petukhov, A. Taskin, D. Fedotov (RU)

Production of modified road bitumen from recycled car tyres

S.M. Sadrameli, Y. Azizi (IR)

Temperature control and thermal management of cylindrical lithium batteries at extreme weather conditions using Phase Change Materials (PCMs)

10:40 - 11:10 Coffee break

SESSION A12 / CENTRAL HALL / 11:10-12:50

FOOD WASTE - RESOURCES

Chair / Presidente:

D.A. Teigiserova, M. Marini, L. Hamelin, M. Thomsen (DK)

Transparent valorization of food waste in the circular economy: clarifying definitions, policy and closed-loop pathways

G. Hafner, D. Leverenz, P. Fuchs, K. Owusu-Sekyere, M. Kranert (DE)

Quantification of food waste and optimizing of food management with digital tools

T. Okayama, K. Watanabe, H. Yamakawa (JP)

Composition of household food waste in an urban area: a case study in Japan

A. F. Patti, J. Banerjee, S. Talekar, S. Banerjee, T. Carruthers-Taylor, K. Little, V. Ranganathan, A. Arora (AU)

Biomass valorisation - Finding value in food waste

SESSION B11 / CENTRAL HALL 2 / 9:00-10:40

LANDFILL AERATION

Chair / Presidente:

M. Huber-Humer, M. Fritz, M. Hrad (AT)

An approach to benchmark in-situ aeration projects

H. Lammen, A. Van Zomeren, J.J. Dijkstra, R.N.J. Comans (NL)

Sustainable landfill management: solid waste sampling and geochemical characterization prior to (an)aerobic stabilization of three old landfills

M. Ritzkowski, K. Kuchta, R. Stegmann, B. Walker (DE)

Opportunities and challenges of full-scale landfill aeration

E. Binner, A. Pukhnyuk, P. Lechner, M. Huber-Humer (AT)

Carbon sink landfill - Influence of aerobisation on carbon content

V. Grossule, M.C. Lavagnolo (IT)

Semi-aerobic landfilling under different waste and water availability conditions

J. Ma, Y. Li, C. Xiao, W. Lu (CN)

Study on the pollutants reduction of recirculated semi-aerobic landfill

10:40 - 11:10 Coffee break

SESSION B12 / CENTRAL HALL 2 / 11:10-12:50

LANDFILL MINING

Chair / Presidente:

J.C. Hernández Parrodi, K. Raulf, D. Vollprecht, T. Pretz, R. Pomberger (BE)

Mechanical processing of fine fractions from landfill mining for material and energy recovery

M. Somani, M. Datta, G.V. Ramana, T.R. Shreekrishnan (IN)

Feasibility of bulk re-use of soil-like material excavated from a MSW dump: case study of Okhla landfill, India

G. Sauve, K. Van Acker (BE)

Integrating life cycle assessment and risk assessment to define a consistent reference scenario in the environmental feasibility assessment of (enhanced) landfill mining

P. Einhäupl, K. Van Acker, S. Van Passel (BE)

Integrating societal impacts into enhanced landfill mining assessment

C. Neculau, F. Nguyen, D. Caterina, I. Isunza Manrique, the RAWFILL team (BE)

Innovative landfill characterization: the case study of Onoz landfill (Wallonia, Belgium)

S. Cappa, A. Ribaud, M. Severgnini (IT)

Landfill mining applications on aggregate landfills in Lombardy region

THURSDAY OCTOBER 3

MORNING

SESSION C11 / PANORAMA HALL / 9:00-10:40

WEEE - COLLECTION AND RECYCLING

Chair / Presidente:

A.Y. Wilkinson, I.D. Williams (UK)

Why do (W)EEE hoard? the effect of consumer behaviour on the release of (W)EEE from home entertainment products into the circular economy

B. Kopacek (AT)

Recovery of precious and critical metals as a service

A. Sharma, Arvind K. Nema (IN)

Performance evaluation of waste lithium-ion battery recycling technologies using multi criteria decision analysis (MCDA) methods

A. Winterstetter, U. Kral (BE)

WEEE collection and recycling - A resource classification approach for the circular economy

G. Bonifazi, R. Gasbarrone, R. Palmieri, S. Serranti (IT)

Plastic identification from end of life flat monitors by hyperspectral imaging methods

10:40 - 11:10 Coffee break

SESSION C12 / PANORAMA HALL / 11:10-12:50

WEEE - METAL RECOVERY

Chair / Presidente:

M.F. Godoy León, G.A. Blengini, J. Dewulf (BE)

Recycling of cobalt in end-of-life products - The MaTrace approach

M. Dunker, H. Hiller, M. Beckmann (DE)

Bromine recovery for the polymer fraction of waste electrical and electrical equipment by thermal treatment in an internal circulating fluidized bed reactor

Y. Zhou, C. Liao, K. Shih (HK)

Combined iron oxide and calcium carbonate additives to immobilize lead in cathode ray tube (CRT) funnel glass

I.V. Moreira, L.H. Yamane, R.R. Siman (BR)

Influence of printed circuit boards' components on acidithiobacillus ferrooxidans-LR growth

L. Călin, A. Cătinean, M. Bilici, A. Samuilă (RO)

Recovery of zinc and brass from spent alkaline and zinc-carbon batteries

SESSION D11 / PANORAMA HALL 2 / 9:00-10:40

BIOFUELS FROM WASTE

Chair / Presidente:

Y. Zhao, A. Damgaard, T.H. Christensen (CN)

How is bioethanol from lignocellulosic waste a sustainable fuel? Quantification of sustainability from a statistical perspective

F. Meng, J. Mckechnie (UK)

Environmental performance of municipal solid waste-derived butanol and ethanol

S.M. Sadrameli, M. Maghami (IR)

Transportation biofuels with improved cold properties by thermal cracking of waste fish oil

K. Melin, A. Oasmaa, J. Strueven, P. Eidam, J. Appelt, C. Hummel, U. Armbruster, A. Martin, Y. Chapelliere, C. Mirodatos, Y. Schuurman (FR)

From black liquor to second generation transportation fuels

10:40 - 11:10 Coffee break

SESSION D12 / PANORAMA HALL 2 / 11:10-12:50

PLASTICS IN MARINE ECOSYSTEMS

Chair / Presidente:

J. Mayerhofer, G. Obersteiner, S. Lenz (AT)

Plastic free Danube: composition of macro plastic waste in the project area of Donau-Auen Nationalpark

M. Mičušík, J. Kuliček, A. Kleinová, M. Procházka, S. Podhradská, M. Omastová, G. Obersteiner (SK)

Chemical analysis of plastic waste in and along the Danube river - Donau-Auen sampling

M. Mičušík, J. Kuliček, A. Kleinová, M. Procházka, S. Podhradská, A. Rabayová, G. Bodor, M. Omastová (SK)

Chemical analysis of plastic waste in and along the Danube river - Bratislava sampling

F. Ruggero, E. Paris, R. Gori (IT)

Plastic waste delivery from the Arno catchment to the Tyrrhenian sea

THURSDAY OCTOBER 3

MORNING

SESSION E11 / 9:00-10:40

WORKSHOP: FORENSIC ENGINEERING

Chairs / *Presidenti*: Alberto Pivato (IT), Claire Gwinnett (UK), George K. Varghese (IN)

This workshop is aimed at giving a broad introduction to the new science of Environmental Forensic Engineering and facilitate discussion about key current issues.

The first part of the workshop (1 h) is dedicated to the introduction of the following concepts:

- A. Pivato. Introduction to environmental forensic engineering: definitions, aims, and applications.
- A. Pivato. Announcement for the constitution of a new international group on Environmental Forensic Science.
- G.K. Varghese. Presentation of a guideline on selecting pollution signatures for environmental forensic investigation.
- C. Gwinnett. Presentation of basics in crime scene analysis: scene documentation, sampling and continuity of evidence, evidence packaging & labelling, etc.

The second part of the workshop will be opened to a guided discussion of the new research topics: bias in environmental forensics, correlation VS causation, new environmental crimes, etc.

The workshop will be preparatory for the following crime scene investigations (session E12) that will be held outside.

10:40 - 11:10 Coffee break

SESSION E12 / 11:10-12:50

WORKSHOP: ENVIRONMENTAL CRIME SCENE ANALYSIS

Chairs / *Presidenti*: Claire Gwinnett (UK), George K. Varghese (IN), Alberto Pivato, Francesco Garbo, Giovanni Beggio (IT)

Aims of Workshop

1. To introduce key crime scene activities that can be employed in an environmental based scenario, including scene documentation, sampling and continuity of evidence.
2. To apply new crime scene knowledge to a landfill leachate spill scene.
3. To identify key issues in scene investigation that would need consideration by a forensic engineer.

SESSION F11 / 9:00-10:40

WORKSHOP: EMERGING POLLUTANTS IN WASTE - ANALYSIS AND TREATMENT

Chairs / Presidente:

Introductory lecture:

M.C. Lavagnolo (IT)

Emerging pollutants in leachate and appropriate treatment

10:40 - 11:10 Coffee break

SESSION F12 / 11:10-12:50

WASTE MANAGEMENT IN SMALL ISLANDS

Chair / Presidente: *Evangelos Diamadopoulos (GR)*

Solid waste management remains a rather challenging and complicated task with different characteristics and demands from country to country, defined by a large number of factors, among which social, economic and geographical ones. Especially small islands, that are mainly characterized by isolated geographies and tourism dominated economies, present many particularities that make sustainable waste management a goal rather hard to accomplish. The situation can get even more complicated in the case of large complexes of small islands, where a whole network must be developed in order to promote optimum and holistic solutions. The scope of this workshop is to present the particularities, the difficulties, the limitations, as well as potential solutions for solid waste management on small islands, focusing of defining factors, real case examples and existing potentialities, having Greece, a country of 6,000 islands and islets, as a background.

Introductory lectures

E. Gidarakos (GR):

Solid waste management at a country of 6,000 islands and islets

A. Giannis, E. Gidarakos (GR)

Solid waste management on small island destinations

R. Cossu (IT)

Solid waste management in the Venice Lagoon

A. Valouma, E. Gidarakos (GR)

Construction and Demolition Waste management: recycling routes on islands

F.-M. Pelleri, E. Gidarakos (GR)

Opportunities for agro-industrial waste valorization on Greek islands

THURSDAY OCTOBER 3

MORNING

SESSION G11 / 9:00-10:40

WORKSHOP: SUSTAINABLE WASTE MANAGEMENT AT UNIVERSITIES I

Chairs / *Presidenti*: Daria Prandstraller, Eleonora Perotto (IT)



Introductory lecture:

D. Prandstraller, E. Perotto (IT)

Sustainable waste management at Universities

A. Cabral (CA)

Sustainable waste management at Université de Sherbrooke, Québec, Canada

C. Guevara Fletcher, L. Segura, C. Useche, J. Plaza, J.L. Solarte (CO)

Characterization and management of solid waste at the Santiago de Cali University, Colombia

10:40 - 11:10 Coffee break

SESSION G12 / 11:10-12:50

WORKSHOP: SUSTAINABLE WASTE MANAGEMENT AT UNIVERSITIES II

Chairs / *Presidenti*: Daria Prandstraller, Eleonora Perotto (IT)

SIDE EVENT WORKSHOP: SMART AND DIGITAL WASTE MANAGEMENT



SESSION H11 / 9:00-10:40

WORKSHOP: SMART AND DIGITAL WASTE MANAGEMENT I

Chair / *Presidente*: Stefano Carosio, Unismart (IT)

Over the past 10 years, the frontier of digital technologies has advanced at a dizzying speed, changing completely our life. At Sardinia 2019 we want to explore how the field of Waste Management will be changed and will be improved thanks to the digital revolution, with a specific focus on the management of wastes in the city of the future.

Introductory lectures:

W. Lu, Z. Bao, J. Hao (CN)

Big data analytics for construction waste management: fad or fashion?

B. Spasova (BE)

New technologies and efficient use of information in waste management

S. Taskila, M. Ahokas (FI)

Safety-on-site application for digital management of industrial safety

G. Xu, D. Chen, J. Luo, B. Zhang, Z. Li, Y. Zang (CN)

Classification and recognition of typical inorganic municipal solid wastes components with help of deep learning tool

10:40 - 11:10 Coffee break

SESSION H12 / 11:10-12:50

WORKSHOP: SMART AND DIGITAL WASTE MANAGEMENT II

Chairs / *Presidenti*: Stefano Carosio, Unismart (IT)

THURSDAY OCTOBER 3

AFTERNOON

SESSION A13 / CENTRAL HALL / 15:30-17:10

FOOD WASTE RECYCLING I

Chair / *Presidente*:

C. Peñalva, J. Vidal, S. Verstichel, P. Fajs, V. Žepič Bogataj, M. Cruz Arcas (ES)
Revalorization strategies for the use of citrus waste in green packaging and cosmetics

G. Hafner, D. Leverenz, K. Owusu-Sekyere, M. Kranert (DE)
Food waste from bakeries: management strategies and quantification of food waste

K. Little, W.R. Jackson, A. Swann, A. Patti (AU)
Options for dealing with cooking oils and grease-trap waste

G. Vega Rodriguez, M. Monzon, N. Diaz (ES)
LIFE BAQUA - Solutions through the new use for a waste of banana crop to develop products in aquaculture and plastics sector

17:10 - 18:00 Coffee break + Poster discussion

SESSION A14 / CENTRAL HALL / 18:00-19:40

FOOD WASTE RECYCLING II

Chair / *Presidente*:

K. Papadopoulou, G.M. Lytras, D. Mathioudakis, G. Lyberatos (GR)
Fermentable household waste management in a circular economy: the municipality of Halandri, Greece case

H. Yamakawa, T. Okayama, K. Watanabe, K. Sawada, Y. Shiro, H. Koizumi, T. Saitoh (JP)
Composition of household food waste in rural area: a case study in Japan

G. Obersteiner, M. Hrad, S. Luck, J. Mayrhofer, R. Ottner, E. Schmied (AT)
Food losses in Austrian agriculture and its potential of prevention

L. Archilletti, L. Medeghini, C. De Vito, S. Mignardi (IT)
Eggshell waste as a valuable resource for cobalt remediation

SESSION B13 / CENTRAL HALL 2 / 15:30-17:10

LANDFILL REMEDIATION AND AFTERCARE

Chair / Presidente:

R.G. Gregory, H. Robinson, T. Robinson (UK)

The science of landfill surrender

R. Lansley, S. Nazaruk, K. Wilson (UK)

A case study of environmental investigation, interpretation and remediation of a source of leachate contamination for a landfill in Gloucestershire, UK

S. Dever, P. Lightbody, M. Winser (AU)

Provisioning for landfill closure and post-closure management costs: an Australian case study

R. Stegmann (DE)

Landfill sites as energy provider for aftercare and associated WM facilities

J. Domizi, E. Fratolocchi, M. Felici, F. Pasqualini (IT)

Hydraulic performance of traditional and special cement bentonite mixtures in sulphate solutions

17:10 - 18:00 Coffee break + Poster discussion

SESSION B14 / CENTRAL HALL 2 / 18:00-19:40

LANDFILL MINING: THERMAL TREATMENT OF COMBUSTIBLE FRACTIONS

Chair / Presidente:

K. Kim, S. Lee, K. Choi, T. Jeon, S. Shin (KR)

Current status and management of excavated materials containing waste in Korea

S.M.Al- Salem, G.A. Leeke, R. Al- Enezi, H.H. Sultan, H.J. Karam, M.H. Al- Wadi, A.T. Al- Dhafeeri, A.A. Boota, J. Wang (KW)

Potential for thermal and solar power pyrolysis in treating reclaimed real life solid waste from a landfill disposal site

I.N. Zaini, C. Garcia López, Y. Gomez Rueda, T. Pretz, L. Helsen, P.G. Jönsson, W. Yang (SE)

Gasification of refuse derived fuel obtained from a ballistic separation process of landfill waste

G.C. Fausson (IT)

Slow pyrolysis to recycle marine litter and landfill plastic: a new perspective for chemical recycling

THURSDAY OCTOBER 3

AFTERNOON

SESSION C13 / PANORAMA HALL / 15:30-17:10

C & D WASTE - POTENTIALS

Chair / Presidente:

H. Hoang, T. Ishigaki, R. Kubota, M. Yamada, K. Kawamoto, G. Nguyen, K. Tong (JP)
An empirical investigation of generation rate, composition and handling practices of construction and demolition waste in Hanoi, Vietnam

C. Ying, Z. Ren, X. Zhang, C. Dai, X. Wu, C. Hou (CN)
Feasibility study of recycled concrete engineering based on the status quo of Chinese concrete resources

F. Di Maria, J. Li Hao (IT)
Comparative study of on-site sorting for C&D in China and Europe

Z. Bao, W. Lu, B. Chi, J. Hao (HK)
Construction waste management performance in green buildings: a PEST analysis of China

H.T. Nghiem, P.Q. Minh, K. Kawamoto, K.T. Ngo, H. G. Nguyen, T.D. Nguyen, Y. Isobe, M. Kawasaki (VN)
An investigation on the generation and management of construction and demolition waste in Vietnam

M. Severgnini, F. Dallari, S. Curi, Y. Borbon, G. Ghiringhelli, E. Amodeo, A. Cappello (IT)
GETRI Project: cross-border intermodal transport management of aggregate and construction and demolition waste (C&DW)

17:10 - 18:00 Coffee break + Poster discussion

SESSION C14 / PANORAMA HALL / 18:00-19:40

C & D WASTE - PROPERTIES

Chair / Presidente:

M. Abdulkareem, J. Havukainen, M. Horttanainen (FI)
Environmental assessment of alkali-activated mortars using different activators

O. Hjelmar, J. Hyks, T. Hougaard, S. Butera (DK)
Content and leachability of potentially problematic substances in recycled crushed concrete from demolition and renovation of Danish buildings

A. Kato, R. Ito, A. Matsuno, T. Uchimura, N.V. Tuan, N.H. Giang, K. Kawamoto (JP)
Water retention and gas transport characteristics of recycled graded roadbed materials blended with AAC grains

M.S. Al-Hwaiti, O.A. Al-Khashman, M.A. Al-Shaweesh, A. Al-Muhtaseb, J.A. Alhwarin (JO)
Improve the rheological properties and compressive strength of self-compacting concrete incorporating finest limestone quarry and finest iron slag, Jordan

S. Serranti, G. Capobianco, S. Malinconico, G. Bonifazi (IT)
Micro X-ray fluorescence imaging coupled with chemometrics to detect and classify asbestos fibers in demolition waste

SESSION D13 / PANORAMA HALL 2 / 15:30-17:10

WORKSHOP: PLASTICS AND ENVIRONMENT

Chair / Presidente:

Introductory lectures:

A. Bartl, W. Ipsmiller, B. Piribauer, D. Koch, T. Laminger (AT)

Microplastics in maritime systems, overview and methods for analysis

S. Lenz, J. Mayerhofer, P. Rauscher, A. Rameder, E. Binner, M. Huber-Humer, G. Obersteiner (AT)

Bioplastics in biowaste and Danube littering

17:10 - 18:00 Coffee break + Poster discussion

SESSION D14 / PANORAMA HALL 2 / 18:00-19:40

PLASTIC WASTE - NEW PRODUCTS

Chair / Presidente:

T.O. Mbuya, A. Evangelou, G.O. Rading, I. Williams, J.I.R. Blake, P.A.S. Reed (KE)

On plastic waste based composite materials for applications in construction

V. Ž. Bogataj, P. Fajs, C. Peñalva, M. Omahen, M. Čop, A. Henttonen (SI)

Utilization of recycled polypropylene, cellulose and newsprint fibers for production of green composites

B. Silva, A. Marques, A. Vilela, H. Martins, A. Mota, A. Ribeiro, J. Araújo, M.C. Paiva, J.P. Nunes, S. Castro, J. Amaro, S. Santos, P. Gaiato, J. Carvalho (PT)

New circularity approach of mixed plastics in the development of eco-sustainable railway sleepers

K. Qian, D. Chen (CN)

Upcycling of waste plastic to carbonaceous solid acid catalysts for fatty acid methyl esters (FAME) production from waste oils

THURSDAY OCTOBER 3

AFTERNOON

SESSION E13 / 15:30-17:10

WORKSHOP: BIOREFINERIES

Chairs / Presidenti:

Introductory lectures:

I. Atamaniuk, H. Boysen, N. Wieczorek, N. Politaeva, I. Smiatskaia, K. Kuchta (DE)
Two-stage fermentative biohydrogen and biomethane production from lipid-extracted chlorophyta microalgae

J. Kannengiesser, A. Campitelli, A. Vogt, I. Steinberg, J. Jager, L. Schebek (DE)
Combination of different treatment methods for biological waste and agricultural residues to generate bio-based products

F. Asunis, M. P. Boni, A. P. Brundu, G. Cappai, A. Carucci, F.G. Cocco, G. De Giannisi, M. Isipato, S. Milia, A. Muntoni, A. Poletini, R. Pomi, A. Rossi, D. Spiga (IT)
Three-step process for hydrogen and PHA production from sheep cheese whey

17:10 - 18:00 Coffee break + Poster discussion

SESSION E14 / 18:00-19:40

WORKSHOP: BIOLOGICAL TREATMENT OF ANIMAL WASTE

Chairs / Presidenti:

Introductory lectures:

I. Moukazis, K. Tsokanis, E. Gidaracos (GR)
Valorization of animal waste and by-products via anaerobic digestion process

F.S. Erkuş, Ş. Sayın (TR)
Performance of sequential anaerobic/aerobic co-digestion of waste activated sludge and cattle manure

SESSION F13 / 15:30-17:10

WORKSHOP: BIOLOGICAL TREATMENT FOR LANDFILL LEACHATE

Chair / Presidente:

Introductory lectures:

T. Robinson (UK)

Removal of dissolved methane from landfill leachates in engineered wetlands

G. Mwangi, A. Mayabi, A. Tanaka, G. Lubaale (KE)

Biological treatment of landfill leachate using organic waste biochar in tropical countries

17:10 - 18:00 Coffee break + Poster discussion

SESSION F14 / 18:00-19:40

WORKSHOP: IWWG TASK GROUP LANDFILL AERATION - OPTIMAL PERFORMANCES AND FAKE AERATION

Chair / Presidente: Marco Ritzkowski (DE)

Published data on landfill aeration projects suggest that the passive aeration concept is increasing by number. This concept has the advantage that the required infrastructure (thus the investment costs) are relatively low since the piping system can be design as a single-line (only negative pressure) and no second blower unit is required. Moreover, benefits may be generated by energy recovery from the extracted landfill gas. But what is often disregarded is the relatively slow stabilisation effect and operational challenges in cases where the landfilled wastes are fully water saturated or even leachate tables are present on the landfill liner.

During the workshop this and other existing methodologies for landfill aeration will be discussed in view of workshop title, namely how to ensure quality performance and sufficient results of landfill aeration projects?

After the methodical issues have been discussed, the workshop will focus on benchmarks in connection with landfill aeration. Here, the focus is on the technical implementation and the discussion shall come up with indications on how to optimize future aeration projects.

Introductory lectures:

M. Huber-Humer (AT)

Benchmarking of landfill aeration projects

M. Ritzkowski (DE)

Objectives and appropriate technical implementation of landfill aeration projects

M. Ritzkowski, K. Kuchta (DE)

Temperature dependency of metabolic processes during landfill aeration

THURSDAY OCTOBER 3

AFTERNOON

SESSION G13 / IN ITALIANO / 15:30-17:10

CIRS - COMITATO INTERDISCIPLINARE RIFIUTI E SALUTE: RESOCONTO ATTIVITA'

Chairs / Presidenti: Raffaello Cossu, Margherita Ferrante (IT)

17:10 - 18:00 Coffee break + Poster discussion

SESSION G14 / IN ITALIANO / 18:00-19:40

CIRS - COMITATO INTERDISCIPLINARE RIFIUTI E SALUTE: LA COMUNICAZIONE NELLA GESTIONE DEI RIFIUTI

Chair / Presidente:

SESSION H13 / 15:30-17:10

WORKSHOP: WEEE - CIRCULAR ECONOMY OPPORTUNITIES

Chair / *Presidente*: Pascal Leroy (BE)

Introductory lectures:

E. Moliner (ES)

Introduction to C-SERVEES - The landscape and opportunities for developing the circular economy in the EEE sector

B. Kopacek (AT)

A new Circular Economy Business Model, created within the C-SERVEES project

P. Carminati (CH)

Circular Economy in practice at Lexmark

P. Leroy (BE)

Results from our survey on opportunities and barriers to Circular Economy

17:10 - 18:00 Coffee break + Poster discussion

SESSION H14 / 18:00-19:40

WORKSHOP: FIRES IN WASTE MANAGEMENT SYSTEMS

Chair / *Presidente*:

Introductory lecture:

T. Nigl, W. Rübénbauer, R. Pomberger (AT)

Cause-oriented investigation of the fire incidents in Austrian waste management systems

DAY 5 / FRIDAY
OCTOBER 4

FRIDAY OCTOBER 4

MORNING

SESSION A15 / CENTRAL HALL / 9:00-10:40

LCA IN WASTE MANAGEMENT

Chair / Presidente:

T.H. Christensen, A. Damgaard, A. Boldrin, T.F. Astrup, V. Bisinella (DK)
The future role of LCA modelling in integrated waste management

E. Spadavecchia, A. Damgaard, V. Bisinella (DK)
Life cycle assessment of the management of industrial textile waste in Northern Italy: factors influencing sustainability

V. Takou, V. Bisinella, A. Damgaard, T. F. Astrup (DK)
Material flow analysis and life cycle assessment of Danish household waste – Factors of importance

L.G. Jakobsen, M.M. Steingrimsdottir, L. Shen, H.M. Junginger, C. Moretti, I. Vural Gursel, J. Petrik, L. Hoejbye, L.C. Dreyer, A.S. Olesen, L. Hamelin (DK)
End-of-life perspectives of life cycle assessment of biogenic plastic in Europe - Case study on cups

10:40 - 11:10 Coffee break

SESSION A16 / CENTRAL HALL / 11:10-12:50

ENVIRONMENTAL IMPACT OF WASTE MANAGEMENT FACILITIES

Chair / Presidente:

Z. Duan, P. Kjeldsen, C. Scheutz (DK)
Validation of the tracer dispersion method for quantifying VOC emissions from waste management facilities - A controlled release test

L. Capelli, R. Arias, J. Uribe, S. Sironi (IT)
Odour impact assessment methods overview: the odour observatory as an informative tool for citizen science based approaches to odour management

R. Arias, N. Salas Seoane, L. Capelli, S. Sironi (ES)
Citizen science for odour impact assessment considering the real perception of the receptors: the case of Barcelona

F. Di Maria, F. Sisani (IT)
Assessment of the environmental impact of the waste management policy. An Italian case study

G.Y. Bian, I.H. Mel Suffet (US)
Monitoring of landfill nuisance odors at an off-site, odor-impacted location using an "odor patrol" panel

SESSION B15 / CENTRAL HALL 2 / 9:00-10:40

END OF LIFE TEXTILES MANAGEMENT

Chair / Presidente:

W. Ipsmiller, E. Ipsmiller, A. Bartl (AT)

Dead white men's clothes: a comprehensive synopsis of end-of-life textiles management and global economic implications

C. Scheutz, N. Nørup, K. Pihl, A. Damgaard (DK)

Assessment method to quantify amount and quality of textiles discarded in Danish household waste

W. Ipsmiller, B. Piribauer, S. Vecchiato, G. Ruppert, A. Bartl, G. Gübitz (AT)

Contributing to a circular economy by an advanced method for the complete recycling of special technical textiles

A. Damgaard, N. Nørup, K. Pihl, C. Scheutz (DK)

Replacement rate for textiles in a circular economy - A case of three African countries

10:40 - 11:10 Coffee break

SESSION B16 / CENTRAL HALL 2 / 11:10-12:50

END OF LIFE TEXTILES - RECYCLING AND ENVIRONMENTAL IMPACT

Chair / Presidente:

C. Scheutz, N. Nørup, K. Pihl, A. Damgaard (DK)

Textile sorting facilities - Material flow analysis and the importance of quality criterias

B. Piribauer, W. Ipsmiller, B. Steinacker, T. Laminger, D. Koch, A. Bartl (AT)

Simulation of natural degradation of cellulosic fibres with cellulase bioreactors

B. Piribauer, U. Jenull-Halver, W. Ipsmiller, T. Laminger, D. Koch, A. Bartl (AT)

TEX2MAT - Next level textile recycling with biocatalysts

P. Hennebert (FR)

Literature evidence on the brominated flame retardant content in plastics of construction, of textiles/furnitures and of non-food packaging: should they be sorted before recycling?

A. Damgaard, N. Nørup, K. Pihl, C. Scheutz (DK)

Environmental impact of improving the fate of textile waste

FRIDAY OCTOBER 4

MORNING

SESSION C15 / PANORAMA HALL / 9:00-10:40

WORKSHOP: FOOD WASTE PREVENTION

Chair / *Presidente*: Gudrun Obersteiner (AT)

Considering the fact that one third of all food in the world is lost or wasted (FAO, 2011), it is indispensable to reduce food waste (FW) and to increase resource efficiency. Food waste reduction is already manifested in a range of policy documents and actions around the world. The ambitious target of the Sustainable Development Goals, which is also followed by the EU circular economy package, is to halve per capita global food waste at retail and consumer levels by 2030 and a further reduction of food waste along the rest of the supply chain. A range of initiatives and measures are already implemented and will further expand in near future due to politic pressure not only in the member states of the EU, but also beyond. However, a robust methodology on food waste quantification is often lacking, but is also necessary to evaluate the success of reduction measures. The workshop includes short introductory presentations followed by interactive discussion on two specific topics: i) definition and quantification of food waste and ii) prevention and reduction measures and its monitoring. This will look into the differences (e.g. cultural, methodical), challenges (e.g. implementation in practice) and opportunities (e.g. impacts on environment, economy and society) in food waste quantification and monitoring, and shall help to foster knowledge for the fight against food waste.

Introductory lectures:

K. Watanabe (JP)

Food waste definitions and categories - Differences between countries

S. Scherhauer (AT)

Possibilities of food waste quantification - Strength and weakness of different methods

G. Obersteiner (AT)

Measures on food waste prevention and reduction - Examples in practice

10:40 - 11:10 Coffee break

SESSION C16 / PANORAMA HALL / 11:10-12:50

WORKSHOP: FOOD WASTE - SOCIAL ASPECTS

Chair / *Presidente*:

S. Luck, G. Obersteiner (AT)

Development and evaluation of school materials on food waste prevention in Austrian tourism schools

K. Watanabe, T. Okayama, G. Obersteiner, J. Riegler, S. Luck (JP)

Factors affecting attitudes and behaviour on food waste - An international comparative study

SESSION D15 / PANORAMA HALL 2 / 9:00-10:40

WORKSHOP: SOCIAL ASPECTS OF ENVIRONMENTAL ISSUES

Chairs / *Presidenti*: Rainer Stegmann (DE), Wenjing Lu (CN)

Introductory lectures:

R. Stegmann (DE)

Social and environmental issues as a curriculum for all University disciplines

W. Lu (DE)

Use of English as a tool for teaching social and environmental issues

M. Ritzkowski (DE)

Societies' responsibility for our environment - Example of plastic waste

G. de Feo, S. de Gisi (IT)

Is it a NiMBY or WhyMBY case of locally unwanted land use?

10:40 - 11:10 Coffee break

SESSION D16 / PANORAMA HALL 2 / 11:10-12:50

WORKSHOP: WASTE AND HEALTH

Chair / *Presidente*:

Introductory lectures:

J. Zayed, B. Bakhiyi, S. Gravel, F. Labrèche (CA)

Global health issues and challenges related to e-waste management

T.L. Gladding (UK)

Health and safety and waste management in the UK

W. Lu (CN)

Health risk assessment on volatile organic compound emission in landfills: from concentrations to biomarkers

I.M. Rafizul, P. K. Mahanta, M. Alamgir (BD)

Assessment of the potential health risk of a waste disposal site in Khulna of Bangladesh

FRIDAY OCTOBER 4

MORNING

SESSION E15 / 9:00-10:40

WORKSHOP: BIOLOGICAL DEGRADATION OF BIOPLASTICS

Chair / *Presidente*:

Introductory lectures:

G. Dolci, M. Grosso, A. Catenacci, F. Malpei, R. Fancello (IT)

Evaluation of the performances of paper and bioplastic bags in the management of food waste

F. Ruggero, E. Carretti, T. Lotti, C. Lubello, R. Gori (IT)

A synergic approach using different methodologies to monitor bioplastic film degradation during composting

10:40 - 11:10 Coffee break

SESSION E16 / 11:10-12:50

WORKSHOP: LONG TERM BEHAVIOUR OF LANDFILL BARRIERS

Chair / *Presidente*:

Introductory lectures:

M. Regadio, J.A. Black, S. F. Thornton (UK)

Comparison of different natural clays for their application as landfill liners

Q. Wang, Q.Y. Xu, J.H. Ko (CN)

Clogging characteristics of geotextiles in simulated bottom ash co-disposed landfill conditions

SESSION F15 / 9:00-10:40

WORKSHOP: THE SCIENCE OF LANDFILL COMPLETION

Chair / *Presidente*: Robert Gregory (UK)

Landfill surrender is regulated under very different regimes globally and even in different EU countries. While landfill is the default method of waste disposal in many countries, it can have long-lasting impacts which require management. As we move away from landfilling as the primary route for waste disposal, the science of landfill is no longer a priority in many countries. Do we just treat landfill as a subset of contaminated land, or do we use our existing knowledge to help bring these sites back into beneficial use with appropriate environmental management, that avoids long term financial and institutional management? This workshop seeks to get key researchers and influencers together to discuss the impacts of landfill processes on landfill surrender so that a policy agnostic, scientifically sound basis for landfill surrender might be developed.

Introductory lectures:

R. Gregory (UK)

The impact of LFG on landfill completion

H. Robinson (UK)

The impact of leachate on landfill completion

O. Hjelmar (DK)

The impact of groundwater protection on landfill completion criteria

10:40 - 11:10 Coffee break

SESSION F16 / 11:10-12:50

WORKSHOP: DISASTER WASTE

Chair / *Presidente*:

Introductory lectures:

M. Asari (JP)

Preparation for disaster waste management in Japan and Pacific countries

M.H. Park, J.Y. Kim (KR)

Limitation of deterministic regression on flood waste quantity estimation in South Korea

A. Messori, S. Suzuki, O. Hirata, A. Tanaka, R. Raga (IT)

Disaster waste management, analysis and comparison of L' Aquila (Italy), Emilia (Italy) and Kumamoto (Japan) earthquake case studies

FRIDAY OCTOBER 4

MORNING

SESSION G15 / 9:00-10:40

CIRS - METODOLOGIA E AFFIDABILITÀ DEI DATI IGIENICO SANITARI

Chair / *Presidente*: Margherita Ferrante (IT)

10:40 - 11:10 Coffee break

SESSION G16 / 11:10-12:50

WORKSHOP: LA GESTIONE DEI RIFIUTI NEI VILLAGGI OLIMPICI

Chair / *Presidente*:

I grandi eventi sportivi, tra cui la prossima olimpiade invernale a Cortina, non sono solamente un'occasione – spesso unica – per esprimere i valori dello sport, né sono solamente un grande momento aggregativo e mediatico che consente di rendere visibile il proprio territorio, ma rappresentano anche una sfida impegnativa nella gestione dei rifiuti, sia liquidi che solidi, in un'ottica di sostenibilità ambientale dell'evento.

In questo workshop si discuterà dei seguenti argomenti:

- Vincoli ambientali e paesaggistici da analizzare per la realizzazione di specifici impianti (mobili o stabili) per la gestione dei rifiuti;
- Decentralizzazione o centralizzazione dei servizi;
- Modalità di attivazione di servizi straordinari di raccolta rifiuti;
- Nuove tecnologie sostenibili per la gestione dei rifiuti nei villaggi olimpici;
- Pianificazione territoriale ed urbanistica dei villaggi olimpici: aspetti architettonici nell'organizzazione della gestione dei rifiuti
- Comunicazione ed educazione come strategie per sensibilizzare il comportamento del pubblico, degli atleti e della popolazione residente in prossimità degli impianti verso una gestione più sostenibile dei rifiuti;
- Casi di studio di esperienze riuscite.

SESSION H15 / 9:00-10:40

WORKSHOP: MEDICAL WASTE MANAGEMENT

Chairs / Presidenti:

Introductory lectures:

Y. Hu, Y. Tian, D. Chen, J. Zhong, H. Zhang (CN)

Medical waste management in China: a case study of the Yangtze River economic belt

V.E. Messerle, A.B. Ustimenko, Z. Jankoski, R.V. Baimuldin (KZ)

Numerical modeling of biomedical waste plasma processing in various gasifying agents

10:40 - 11:10 Coffee break

SESSION H16 / 11:10-12:50

WORKSHOP: X-RAY FLUORESCENCE FOR WASTE CHARACTERIZATION

Chair / Presidente: Florian Part (AT)

This workshop aims to introduce handheld X-ray Fluorescence (hXRF) instruments, as a tool for rapid analyses for solid waste characterisation. hXRF is a non-destructive and portable method for determining the elemental composition of diverse solid wastes - theoretically, it works for all elements with an atomic number > 8. This method allows to measure relatively large sample sizes in-situ and consequently allows to study the heterogeneity of diverse waste streams. The elemental composition of heterogeneous waste is an important parameter to make a decision on its further treatment. It can tell if a material contains valuable components suitable for recycling or if the sample is contaminated and must undergo a specific treatment before disposal. On the contrary to hXRF, standard lab equipment is located in laboratories. Consequently, samples have to be taken on-site, transferred to a lab and need to be prepared (e.g. using microwave-assisted digestion) prior to being analysed, for instance, via ICP-OES or GC-MS. Hence, days pass before an evaluation report is available to make a final decision on how to adequately treat a certain material charge. In conclusion, in terms of quality management hXRF is a promising method to be used on-site for waste characterisation in order to quantify valuable substances (e.g.: phosphor) or to screen contaminants (e.g. mercury). *Read the full appetizer on the website*

Introductory lectures:

C. Zafiu, A. Jandric, F. Part (AT): Applicability of portable X-ray fluorescence devices for waste characterisation: challenges and opportunities

C. Zafiu (AT): Principles, limitations and available hXRF devices

F. Part (AT): Application study on sewage sludge ashes

A. Jandric (AT): Application study on plastics

POSTER SESSIONS
SESSIONI POSTER

POSTER SESSIONS

SESSIONI POSTER

Poster presentations will be accessible to Symposium delegates at all times. Poster discussion will take place in the presence of authors in the afternoon from Monday to Thursday from 17:40 to 18:00.

Le presentazioni poster saranno sempre accessibili ai partecipanti al Simposio. *La discussione dei poster avverrà alla presenza degli autori dal lunedì, al giovedì pomeriggio dalle 17:40 alle 18:00.*

A. GENERAL ASPECTS

A01 / J.E.S., Santos, A.G.H.P. Van Elk, J.A Ferreira (BR)

Challenges for the implementation of the national solid waste policy in Brazilian municipalities, case study of São Gonçalo, Rio de Janeiro

A02 / V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)

Collection, transportation and final disposal of wastes deposited clandestinely

A03 / V. Nevrlý, R. Šomplák, V. Smejkalová (CZ)

Saving of ghg by modifying schedule of waste collection routes

A04 / V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)

Mathematical model for the future forecast of waste management clandestinely

A05 / R.S. Magalhães, S.R. Teixeira, G.T.A. Santos, L.F. Santos, N.F.G. Silva, A.E. Souza (BR)

Characterization of spent foundry sand in development of glass-ceramic

A06 / V.L.F. S. Ramos, C.F. Mahler, F. B. Mainier (BR)

Study of heating value of urban solid waste

A07 / C. Hoysall, B.S. Jai Prakash (IN)

Froths, fires and fights over sustainability of Bellandur Lake - A case for intensive environmental detectivism

A08 / I. Dudar, O. Yavorovska (UA)

Method of efficient allocation of facilities of the municipal solid waste system on the city plan

A09 / A.L.F.M. Conde, J. Tonnera Jr, J.C. Campos, B.R. Quintaes (BR)

Physical characterization of the urban solid waste generated in different cities of Rio de Janeiro State, Brazil

B. RECYCLING

B01 / A. Mikelionienė, D. Vaičiukynienė, A. Augonis, E. Ivanauskas, J. Mockienė, V. Sasnauskas (LT)

The use of zeolitic waste with ammonium ions in cement systems

B02 / L.F. Santos, S.R. Teixeira, R.S. Magalhães, G.T.A. Santos, S.S. Barreto, A.E. Souza (BR)

Characterization and reutilization of spent foundry sand in the production of rectangular concrete blocks for interlocked pavement

- B03** / J. Li, S. Yoshi, S. Riya, A. Terada, M. Hosomi (JP)
Zero-valent iron addition and dry magnetic separation for the treatment of geogenic arsenic-contaminated excavated sedimentary rocks in Japan: a case study
- B04** / M. Sarkkinen, K. Kujala, S. Gehör (FI)
Enhanced binder efficiency through waste based composites applied for road stabilization
- B05** / V. Ocheretnyi, S. Sevastianov, O. Yavorovska (UA)
Perspective use of thermal insulation materials from waste for high rise building
- B06** / M.P. Maniscalco, D. Ticali, R. Volpe, A. Messineo (IT)
Effect of CO₂ activation parameters on the electrosorption capacity of biomass-derived electrodes in CDI applications
- B07** / F. Zimmermann, M. Lecler, F. Clerc, J. Grosjean (FR)
Assessing and reducing chemical risk in waste recycling sectors in France
- B08** / M. Rouskova, S. Sabata, O. Solcova, J. Hanika (CZ)
Recycling of bio-elements from waste chicken feather
- B09** / M. Regadio, J.A. Black, S.F. Thornton (UK)
High attenuation recycling materials as landfill liners: the HARM project
- B10** / V. Starostina, A. Kurina, E. Zelinskaya, N. Tolmacheva, A. Garashchenko (RU)
The use of ash-and-slag waste as raw materials for the production of environmentally friendly building materials
- B11** / G. M. P. Kumara, A. Matsuno, T. T. V. Nga, N. H. Giang, K. Kawamoto (JP)
Simultaneous removal of Pb(II) and Cd(II) from binary and multi-metals solutions using autoclaved aerated concrete and steel slag grains as low-cost adsorbents

C. BIOLOGICAL TREATMENT

- C01** / É. Dumont, S. Lagadec, N. Guingand, L. Loyon, A. Amrane, V. Couroussé, C. Gardin, A. Couvert (FR)
Control of biotrickling filters treating NH₃ emissions from animal houses using electrical conductivity measurement
- C02** / Y. Smyatskaya, N. Politaeva, A. Chusov, I. Atamaniuk, A. Kosheleva (RU)
Utilization of microalgae residues as sorbents for removal of heavy metals from (industrial) wastewater
- C03** / E.O. Silva, C.F. Mannarino, F.V. Correia, E.M. Saggiaro (BR)
Waste poultry litter contaminated to antibiotics and their toxicity on earthworms *Eisenia andrei*
- C04** / L.M.R. Gaspar, C.T. Inácio, B.R. Quintaes, H.L. Silva, A.A.C. Peres (BR)
Management and quality tools applied to agribusiness waste management
- C05** / I. Wojnowska-Baryła, D. Kulikowska, K. Bernat (PL)
Biodegradability and compostability of biobased products

POSTER SESSIONS

SESSIONI POSTER

C06 / *D.R. Lapen, N. Gottschall, M. Edwards, I. Khan, E. Craiovan, S.K. Frey (CA)*
Using drinking water treatment plant sludge in woodchip bioreactors to reduce nitrogen, phosphorus, pathogens, and veterinary antibiotics in agricultural drainage

C07 / *É. Dumont, S. Lagadec, N. Guingand, L. Loyon, A. Amrane, V. Couroussé, C. Gardin, A. Couvert (FR)*

Nitrogen mass balance of a biotrickling filter treating NH_3 emissions from pig house

C08 / *J. Rusin, K. Chamradova (CZ)*

Dry anaerobic digestion of biowaste from maintenance of urban greenery in novel rotary bioreactor

C09 / *K. Chamradova, J. Rusin (CZ)*

Aerobic fermentation of grass cuttings in a rotary bioreactor

C10 / *K. Bernat, I. Wojnowska-Baryła, A. Cydzik-Kwiatkowska, M. Zielińska, M. Zaborowska (PL)*

Valorisation of leachate from stabilization of organic fraction of municipal solid waste

C11 / *K. Bernat, M. Zielińska, A. Cydzik-Kwiatkowska, I. Wojnowska-Baryła, P. Tomalska (PL)*

Co-fermentation of crude glycerol and leachate from stabilization of organic fraction of municipal solid waste

D. THERMAL TREATMENT

D01 / *A. Kielė, D. Vaičiukynienė, A. Kantautas, D. Nizevičienė, V. Bocullo, R. Bis-trickaitė (LT)*

Alkali activated biomass bottom ash and zeolitic waste

D02 / *E. Hroncová, J. Ladomerský (SK)*

Two stage process of unused pentosan raw material transformation to 2-furaldehyde and biochar

D03 / *B. Grycova, A. Pryszcz, V. Blahuskova, P. Lestinsky (CZ)*

Waste incineration products stabilizing with regard to legislative requirements

D04 / *V. Blahuskova, J. Vlcek, M. Topinkova (CZ)*

Evaluation of solid residues after incineration of waste

E. LANDFILLING

E01 / *A. M. Costa, M. R. S. Valentim, L.F. Silva, S.D.A. Daflon, B.R. Quintaes, J.C. Campos (BR)*

Ecotoxicological evaluation of the contamination potential of leachate from Brazilian landfills: comparison between closed and active landfill

E02 / *K. Ishii, T. Furuichi (JP)*

A simple box model for watering control in closed system disposal facilities

- E03** / L. Liu, X. Zhang, Y. Tian, Y. Wan (CN)
Degradation phase and stabilization evaluation in long term aeration in an old landfill
- E04** / R. De Almeida, F.A. Oroski, J.C. Campos (BR)
Techno-economic assessment of the nanofiltration in the treatment of landfill leachate
- E05** / S. Junior, C. Mannarino, E. Saggiaro, F. Correia (BR)
Ecotoxicological evaluations of landfill leachate on *Eisenia andrei*
- E06** / G. Gomes, A.S. Argolo, C.F. Mannarino, D.M. Bila (BR)
Estrogenic activity in dissolved and particulated phase from landfill leachate
- E07** / J.M. Lopez, C.M. Lopez, C. Romanel, A.G. Van Elk, M.M.O. Santos (BR)
Methane generation prediction in Brazilian landfills using neural networks
- E08** / A.F.C. Klink, A.G.H.P. Van Elk, J.C. Silva (BR)
Monitoring and prediction the long-term settlement in Nova Iguaçu sanitary landfill, Rio de Janeiro, Brazil
- E09** / G.D.C. Anjos, R.S. Chalegre, D.M. Bila, J.C. Campos (BR)
Evaluation of landfill leachate treatment using activated sludge with addition of powdered activated carbon and zeolite
- E10** / J.C. Campos, V.A. Ferreira, A.M. Costa, J.M.S. Couto (BR)
Evaluation of the reduction of landfill leachate ecotoxicity after adsorption with activated carbon as pre and post-treatment to biological process
- E11** / Y. Matsufuji, S. Hoshino, T. Mito, A. Tachifuji (JP)
Rehabilitation of landfill site by "Fukuoka method" in Addis Ababa, Ethiopia
- E12** / K. Berger, S. Melchior (DE)
Soil temperatures in landfill cover systems – Measurement results from Hamburg, Germany
- E13** / T.S.M.M. Kamiji, F.J.P. De Oliveira (BR)
Evaluation of operational and safety aspects of Brazilian sanitary landfills
- E14** / D. Rakic, I. Basaric, J. Jankovic, T. Djuric (RS)
The importance of geotechnical investigations for the construction of transfer station "Prelici" on landfill in Cacak - Serbia
- E15** / V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)
Mathematical model for calculating primary and secondary settlements on waste
- E16** / V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)
Geomechanical parameters in urban solid waste
- E17** / S. Melgaço, V.P.R. Batista, D.M. Bila, E. Ritter (BR)
Sorption of organic and inorganic leachate contaminants by soil
- E18** / J. Ma, Y. Li, C. Xiao, D. Yue (CN)
Dissolution characteristics of calcium-based waste in sanitary landfill

POSTER SESSIONS

SESSIONI POSTER

F. INDUSTRIAL WASTE AND CONTAMINATED SITES

F01 / *B. Ebin, M. Petranikova, D. Klinar, M. Kosir, P. Angelopoulos, K. Grossman, R. Geurts, M. Halilovic, P. Davris (SE)*

Detoxification and recovery of spent pot linings (SPL) from aluminum production

F02 / *V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)*

Plasticity study in contaminated soils

F03 / *M. F. Godoy León, G. A. Blengini, J. Dewulf (BE)*

Data collection and data quality assessment for cobalt

F04 / *S. Saetta, F. Di Maria, V. Caldarelli, S. Tapola (IT)*

Improve the use of natural resources: inorganic binders in iron and steel foundries - Case of the Green Foundry LIFE project

F05 / *S.B. Zueva, I. Birloaga, F. Ferella, E.V. Baturina, V. Corradini, F. Veglio (RU)*

Mitigation of fluorine-containing waste resulting from chemical vapour deposition used in manufacturing of silicon solar cells

F06 / *I. De Michelis, S.B. Zueva, V. Corradini, V. Innocenzi, N.M. Ippolito, M. Prisciandaro (RU)*

Effect of high concentration of tetramethyl ammonium hydroxide on the biological kinetic of sewage sludge

F07 / *A. G. Ramu, G. Muthuraman, I.-S. Moon (KR)*

Homogeneous electron mediators for ambient temperature degradation of gaseous chlorobenzene by electroscrubbing

F08 / *M. Lecler, F. Zimmermann, E. Silvente (FR)*

Improving the work environment in the fluorescent lamp recycling sector by optimizing mercury elimination

F09 / *G. Ascensão, F. Faleschini, J. Vleugels, H. Rahier, M. Marchi, M. Segata, Y. Pontikes (IT)*

The effect of polypropylene glycols on the properties of Fe-rich alkali activated materials

F10 / *F. Kastanek, Y. Maleterova, H. Snajdaufova, O. Solcova (CZ)*

Removal of hazardous substances from soils and underground water in field conditions

F11 / *Y. Maleterova, K. Demnerova, F. Kastanek, O. Solcova (CZ)*

Biodegradation of phenol adsorbed on soil

F12 / *V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)*

Resistance parameters of contaminated tropical soils

F13 / *V.L.F.S. Ramos, C.F. Mahler, F.B. Mainier (BR)*

Gravimetry, morphology and granulometry of soil contaminated with municipal solid waste (MSW)

F14 / *M.L. Franchi, F. Franceschini, R. Petrini, R. Giannechini, A. Staiano (IT)*

Arsenic contamination in domestic wells in the Southern Versilia (Tuscany): investigation and hypothesis on origin and causes