

Foreword

WasteEng2005 Conference 1st International Conference on Engineering for Waste Treatment. *Beneficial Use of Waste and by-Products*
The scientific, technical and social stakes of the valorisation of wastes as energy and secondary materials: Conclusions from the WasteEng2005, Albi France, 17–19 May 2005

The first International Conference on Engineering for Waste Treatment: Beneficial Use Of Waste And By-Products, “WasteEng2005” was held at the Ecole des Mines d’Albi-Carmaux in France from 17 to 19 May 2005.

This event, organized by the Ecole des Mines d’Albi-Carmaux in collaboration with the Paul Sabatier University of Toulouse, the CNRS PROMES Center in Odeillo, Tsinghua University in China and the New Jersey Institute of Technologies (NJIT, USA), gathered 275 participants coming from 40 countries. The organizers were granted support from prestigious organisations, namely ADEME (The French Environmental Protection Agency), ONYX, SOLVAY, SITA, INERTEC, INERIS, LHOIST, CNRS-SPI, SETARAM, the Midi-Pyrénées region and the city of Albi.

Topics covered by the conference ranged from issues related to basic research to industrial development of new technologies and processes for the treatment and beneficial reuse of wastes.

WasteEng2005 was a showcase for sustainable development. One of the objectives was to bring together actors from different fields of expertise in order to confront their viewpoints and work together on the definition of new avenues for scientific, technological, and legislative progress concerning waste treatment with beneficial reuse in mind. WasteEng2005 looked at agricultural, industrial and municipal solid wastes, polluted soils and sediments as well as gas and liquid emissions. New processes and treatment methods were described for organic and mineral pollutants, with special emphasis on minimizing the production of greenhouse effect gases. Several speakers focused on evaluating the environmental impact and risk assessment for various waste reuse scenarios.

Green technologies presented aimed at reducing polluting emissions, minimizing the impacts of pollution on health and the environment as well as promoting reuse of residues whenever feasible with due consideration of health, environment, economical and technological concerns. Green technologies in Europe represent a 200 billion euro business, about 500 euros

per inhabitant and provide jobs to 2 million people. Activities are increasing with a yearly growth rate steadily near 5% for the past 10 years. This led the European commission to engage an Environmental Technology Action Plan in 2003 to comfort growth and promote environmental quality and protection of natural resources. The WasteEng2005 conference took place in this context.

During the 3 day long meeting, presentations and discussions highlighted significant topics:

- New cutting-edge technologies and research on the pre-treatment methods, processes and environmental and sanitary evaluation strategies for better reuse of waste materials.
- Detailed descriptions of implemented concepts including their risk, environmental and economical assessments.
- Examples of new processes and pilot scale or industrial demonstrations.
- Legislative updates and tendencies.
- Barriers to conquer from the technical, legislative and society acceptance points of view to progress in the beneficial reuse of wastes.

Selected papers from WasteEng2005 are published in two special issues of peer reviewed international journals. The papers dedicated to the valorization of waste to energy has been published in a special issue of *Trans IchemE Part B, Process Safety and Environmental Protection*, 2006, 84(B4). The papers focused on the valorization of waste to raw or secondary materials as well as those on the Environmental assessment and Management of waste are published in this special issue of the *Journal of Hazardous Materials*.

Research and development opportunities

During the post conference workshop, held on Friday May 20 at the Ecole des Mines d’Albi, a working group of experts summarized the advances revealed during the various sessions.

A consensus was reached to define the most promising results and needs for future research:

- Multidisciplinary networks need to be reinforced on the European and World scale in order to generate fruitful exchanges between specialists as demonstrated during WasteEng2005.
- More cooperation is needed at different levels of government, academia and industry. Support is required to build demonstration pilots for emerging technologies.
- Public opinion has to be fashioned to promote recycled materials and accept products and energy made with wastes each time this is possible. This policy will advantageously reduce waste stockpiling and land filling and help preserve natural resources and land sites.

Dynamic and constructive interactions between partners will lead competent authorities to establish accepted practice for the conversion of wastes to new materials and new products. Such guidelines are needed to gain long-term acceptance by the public at large.

The 3 days of intense communications presented at WasteEng2005 revealed how motivated the international and local communities. High stakes in energy and environmental conservation are particularly timely. When all actors of research and industrial development work together in all fields of process engineering, civil engineering, environmental and other sciences devoted to the treatment and beneficial reuse of wastes, new advances and outlets can be expected in the near future.

Participants were eager to renew the WasteEng experience and eight prestigious institutions from Australia, China, Great Britain, Greece, Spain, Sweden, USA and Turkey volunteered to organise the next meetings to be held every 3 years. The next international conference, WasteEng2008, will be held in Patras, Greece, from June 3 to 5, 2008. Thematic leaders will prepare expert meetings on selected topics in forthcoming months. WasteEng2008 (www.wasteeng08.org) will be focused the experiences and research on the valorisation of waste (conversion of residues, waste, biomass, . . . to energy and secondary materials), and the minimisation of green house emissions.

The proceedings of WasteEng2005 can be obtained by contacting Jean-Louis Dirion (dirion@enstimac.fr) or Ange Nzihou (nzihou@enstimac.fr). Informations on the WasteEng Conference series are available at www.wasteeng.org.

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