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Lecture #8

13:00 CET

THERMOCHEMICAL TREATMENTS FOR ENERGY OR FUEL RECOVERY FROM WASTE

Thermochemical treatments of different kinds of solid waste are today able to provide a safe recovery of electric and thermal energy, an efficient recycling of inorganic materials and a crucial saving of space for landfilling, in full compliance with the protection of human health and the environment. Innovative processes and technologies can also produce chemicals and fuels and strongly limit the carbon dioxide emissions. The main driver for these applications is the climate change and the agreement of the majority of countries to phase out fossil fuels.

The webinar will analyse the expected new role of Waste-to-Resources units, which conventional and innovative thermochemical plants can play in a modern waste management system.

A taxonomy of different processes will be proposed and some promising innovative solutions will be indicated, with a particular attention to advanced gasification technologies for fuel production. An evaluation of their decarbonisation potential and current technology readiness level will be also provided.

An objective approach to develop a suitable comparison of alternative thermochemical solutions for solid waste management will be eventually proposed.

Prof. Umberto ARENA
University of Campania
"Luigi Vanvitelli"
Italy

Umberto Arena, Ph.D. in Chemical Engineering, is full professor of "Solid waste management" and "Industrial Pollution Control Engineering" at the University of Campania "Luigi Vanvitelli".

He is co-Editor-in-Chief of the Waste Management journal (Elsevier) since January 2018 and Associate Editor of the same journal from 2012 to 2017, with specific competence in thermal treatments and LCA studies for integrated waste management.

He has been guest professor/visiting scientist in some universities and research centres, such as Tongji University of Shanghai (China), Nanyang Technological University of Singapore, Kuwait Institute of Scientific Research of Kuwait City and keynote lecturer in several international schools.

He is member of the Managing Board of the International Waste Working Group and, in the same association, the leader of the Task Group on Thermal Treatments.

He is team leader of national and international projects about processes and technologies for energy recovery from biomass and waste, waste management planning, and life cycle assessment of waste management treatments. He is also consultant of public institutions, industrial companies and research centres on similar topics.

He is author of more than 100 scientific papers published in primary international scientific journals and wrote chapters in multi-authored books dedicated to fluidized bed reactors, with specific attention to gasification and pyrolysis of different kind of solid wastes.