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Editorial

Industrial and hazardous waste management

Studies on hazardous substances and industrial waste, as well as efforts to develop optimum management and treatment methods are mainly attributed to the need for human life and environmental protection. The destructive effects of hazardous substances have commanded the thorough exploration of their influence on humans and other living organisms, the determination of certain parameters that can be used for the specification and the quantification of the existing risk and finally the development of effective management and treatment methods.

Although the term "hazardous waste" is difficult to be precisely defined, in general it represents wastes that have special properties, which make them dangerous for humans and the environment. These properties may include ignitability, corrosivity, reactivity, toxicity, etc.

During the past years, environmental authorities of many industrialized countries have focused on hazardous and industrial waste management, since they have realized that the environmental damage that can be caused by them is greater than it is usually expected and "restoration cost" is higher than "prevention cost". Uncontrolled hazardous and industrial waste management and disposal cause irrecoverable problems, through soil, ground and surface water contamination, whose remediation cost is very high. Additional problems that can be caused include explosion and fire risks, toxic gases emissions, ecosystem necrosis and/or human deaths. Consequently, the existence of an appropriate management and treatment system for the produced toxic and hazardous waste is essential in every country.

It is commonly accepted that the environmental impacts of waste treatment are continuously reducing. New techniques have been developed for the treatment of hazardous waste and better management of problematic waste streams, such as waste oils, PCBs/PCTs and batteries. Heavily polluting landfills and incinerators are being cleaned up. The levels of dioxins and other emissions from incineration are being reduced. With time, waste is increasingly seen as a valuable resource for industry. And last not least, diversion of biodegradable waste from landfills and increasing recycling and recovery are contributing to reducing greenhouse gas emission.

However, despite these successes, there are no reasons to recline. Waste remains a problem in the EU and worldwide. We need further on the development of legislation and control. But we need more than this. What we need is a package of measures. Also we need common awareness about the ecological handling of hazardous wastes. We need more education and qualification of the operators. We need science and research the technological innovation. We need cooperation between all stakeholders and administration. And of course there is a need for capital investment.

Voluntary agreements are usually proposed by the industry or parts of it and commit the industry to achieve a certain target or to observe certain standards. This instrument is more market oriented than obligations and more flexible. However, the specified targets are not legally binding and free-riders may abuse the system.

In many countries the public sectors constitutes a considerable share of the market. Beneath this direct market power of the public sector, there is an additional effect of environmental sound public procurement: the state is acting as a good example for the average citizen. Furthermore, the public sector can be the decisive force for overcoming all barriers when preferring eco-designed products or efficient services.

All in all the management of hazardous and industrial wastes requires clear responsibilities, high-level technical standards for recovery and disposal and last not least a special supervision by the competent authorities. The new EC-Directive on waste aims to meet these requirements. Member States have to fellow this aim by implementing these regulations into national law. And perhaps these regulations may be example for legislative work of course outside Europe.

CRETE Conference series on "Industrial and Hazardous Waste Management" aims at the establishment of an international meeting of scientists and practitioners, that work in the field of hazardous and industrial waste management and treatment and have valuable knowledge and experience, which can be exchanged and readily available to professional communities worldwide.

The 2nd International Conference CRETE 2010 was conducted in October 2010 with the participation of scientists from 55 different countries. It included oral presentations, special workshops, courses and sessions, as well as poster presentations focusing on the main controversial aspects of hazardous waste management and treatment.

The papers included in the present Special Issue were carefully chosen, based on several factors, including the scientific quality of the paper, the relevance to the journal's topics, the nature of the paper (case study, preliminary work, conceptual work, design, etc.) and their novelty, partially reflecting the topics discussed during the CRETE 2010 Conference. Of course, they underwent thorough review and revision, according to the strict specifications of the Journal of Hazardous Materials.

The Conference Chairmen and Editors of this Special Issue would like to thank the Editorial Board of the Journal of Hazardous Materials for their kind and valuable co-operation, the authors of the

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included papers, as well as all those who contributed to the conduction of CRETE 2010 Conference.

We will be pleased to welcome the readers of this issue to our following Conference CRETE 2012 that will be held in September 2012 at Chania, Crete, Greece. More information is available at the CRETE 2012 official website: www.hwm-conferences.tuc.gr.

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