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Management of Waste and Recycled Materials in Construction

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Editorial

Since early 1990 the interest in using alternative materials (secondary raw materials or former waste materials) in construction has grown continuously. This is in line with key environmental policies: waste prevention, material reuse and recycling, energy recovery from waste, saving primary sources and avoiding landfill to the extent possible. When alternative materials are used in different fields of application, the economic aspects, technical quality objectives and environmental issues all need to be addressed and balanced. It makes little sense to recycle an abundant and cheap waste material in an application not meeting the technical or environmental standards; a technically and environmentally complying application using alternative materials, but with a much higher total cost than the traditional solution, also is not useful. This Waste Management special thematic issue deals with "Environmental implications of alternative materials in construction and treatment of wastes". The issue is a grouped collation of papers submitted regularly to the Journal and selected papers originally presented at the 2009 WASCON Conference, upgraded for undergoing the normal peer-review process. The WASCON conference series held every three years since 1991, are promoted and coordinated by the international non-profit organisation ISCOWA in order to exchange information regarding the technical and environmental aspects of construction with industrial by-products. Although in the field of using alternative materials in construction a lot of progress has already been made, several areas remain where further research and development is needed:

(a) Production methods of construction materials starting from waste materials have their special points of attention and are sometimes quite non-standard compared to regular production routes. Therefore, detailed and realistic investigations should be made to develop new methods or improve existing ones, rather than copy regular production routes. Reporting such case studies could inspire other people to look for other applications.

(b) All too often, only based on a few strength measurements and a few leaching tests on a sample freshly produced in the lab, it is claimed that large scale application by recycling of an alternative material is feasible. The technical aspects of such large scale application, the durability aspect, and the end of life fate of the construction material were indeed often neglected. Long-term durability in realistic conditions, which of course influences environmental impact and sustainability, is not easy to address, since practical experience with the use of alternative materials is relatively short. In order to address this aspect properly, input from the end user is indispensable.

(c) If more and more alternative material from different sources will be recycled in final construction products, e.g. bottom ash or fly ash in concrete or in bricks, also the level of contaminants in the concrete structures or bricks, will increase. Even if the level of environmental impact e.g. through contaminant leaching from large, monolithic structures, blocks, is negligible, at the end of life the concrete or the brick may end up as a small size aggregate with a significantly different environmental impact e.g. through leaching. Moreover, the resulting aggregate may be further recycled in similar or different applications or products. A better understanding of the multiple use of alternative materials in construction applications is needed for setting criteria to ensure sustainable beneficial use of alternative materials in construction.

(d) Adequate leaching test methods were developed since several decades to assess the environmental impact of the use of alternative materials in construction. Over the years we have seen a steady increase in the use of more sophisticated tests allowing a better understanding of the release of substances under actual field conditions and long-term constituent behaviour. These methods will soon, both in Europe and in the US, be turned into fully validated tools for regulatory purposes. Further harmonization of these methods across different fields may be feasible in the future [1-5].

(e) The effort (time and cost) needed to characterize the release behaviour of substances from a variety of materials and products have hampered the introduction and acceptance of these tests. This was mitigated by development of a tiered approach: when a material or product has been adequately characterized, simplified testing preferably based on just one test condition of the more elaborate tests, suffices to judge compliance of a material or product with prior data. Such a system that reduces the need for testing time and time again once a suitable reference base has been established, works most efficiently, if reference data on materials and products are publicly available.

References

1. Fox, Megan E., and Mary Kay Lobo. "The molecular and cellular mechanisms of depression: a focus on reward circuitry." *Mol Psychiatry* 24 (2019): 1798-1815.
2. Guo, Tiantian, Denghong Zhang, Yuzhe Zeng, and Timothy Y. Huang, et al. "Molecular and cellular mechanisms underlying the pathogenesis of Alzheimer's disease." *Mol Neurodegener* 15 (2020): 1-37.
3. Gatto, Emilia M., Gustavo Da Prat, Jose Luis Etcheverry, and Guillermo Drelichman, et al. "Parkinsonisms and glucocerebrosidase deficiency: A comprehensive review for molecular and cellular mechanism of glucocerebrosidase deficiency." *Brain Sci* 9 (2019): 30.
4. Pitsillou, Eleni, Sarah M. Bresnehan, Evan A. Kagarakis, and Stevano J. Wijoyo, et al. "The cellular and molecular basis of major depressive disorder: towards a unified model for understanding clinical depression." *Mol Biol Rep* 47 (2020): 753-770.
5. Humo, Muris, Han Lu, and Ipek Yalcin. "The molecular neurobiology of chronic pain–induced depression." *Cell Tissue Res* 377 (2019): 21-43.

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