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Editorial

2nd International Workshop, Mechanisms and Modelling of Waste/Cement Interactions, October 12 to 16, 2008, Le Croisic, France

The workshop series entitled "Mechanisms and Modelling of Waste/Cement Interactions" was launched in 2005 with the first workshop held in Meiringen, Switzerland. The aim of this initiative is to initiate scientific discussions and establish personal contacts at the international level between researchers working in three different fields such as cement chemistry, nuclear waste disposal and hazardous waste disposal. The workshop series focuses on improving our understanding of the chemical processes in cementitious systems at the atomic scale, which is rendered possible due to emergence of numerical modelling tools and progress in the development of modern analytical and imaging techniques with micro-scale resolution. Molecular-scale insights into the behaviour of cementitious systems and studies of the interaction with waste materials at the atomic level could open up new vistas in conjunction with the design of novel binders and construction materials by cement chemists and further answer important questions in connection with the required long-term safe disposal of radioactive and hazardous waste in cement-based confinements.

The workshop was held in Le Croisic, France, between October 12 and 16, 2008, and was attended by nearly 80 scientists from all over the world. It was organized by SUBATECH/Ecole des Mines de Nantes in cooperation with the Institute Carnot de Bourgogne. This special edition of *Cement and Concrete Research* presents a broad but integrated view on the workshop themes. It includes selected papers from a total of more than 60 contributions published in the Proceedings of the 2nd International Workshop on "Mechanisms and Modelling of Waste/Cement Interactions". All manuscripts received were subjected to the usual peer-review process, which finally resulted in 12 accepted papers originating from workshop contributions[1].

The scientific programme encompassed a broad range of issues related to the chemistry of cementitious systems. Several sessions were dedicated to the latest experimental findings and thermodynamic modelling of the hydration process in a variety of cementitious materials, cement degradation and leaching processes and the interaction of trace elements with single cement minerals and cement paste. A special session conveyed the chemistry of low-alkalinity (also termed low-pH) cements and assessments of their performance in the engineered barrier of deep geological repositories for radioactive waste. Further sessions were dedicated to exploring the microstructure of cementitious materials using modern research tools such as *ab initio* modelling, synchrotron-based tomography and spectroscopy and neutron imaging as well as to linking micro-structural properties to macroscopic observations in connection with diffusion and degradation processes. Another topic that attracted a large interest during the workshop was the interface between clayey and cementitious materials, particularly with a view to the long-term safe disposal of hazardous and radioactive wastes in cement-based confinements surrounded by clay barriers or clay-type host rocks, respectively. Chemical reactions and mineral transformations occurring at this interface were investigated using both experimental and modelling approaches. The many lively discussions among researchers from the different fields, certainly stimulated by the inherent natural beauty of the Breton coast and the intimate atmosphere of a workshop with only a limited number of participants, have proven true that substantial synergy exists between the three types of activity and there is no denying that we still have much to learn from each other.

The workshop organizers would like to thank the following institutions for their financial support and encouragement:

- ANDRA — Agence Nationale pour la Gestion des Déchets Radioactifs, France;
- ATILH — Association Technique de l'Industrie Liants Hydraulique, France;
- CNRS — Centre National de la Recherche Scientifique, France;
- ICB — Institut Carnot de Bourgogne, Université de Bourgogne, France;
- ONDRAF/NIRAS, Belgium; and
- SUBATECH, Ecole des Mines de Nantes, CNRS/IN_2P_3, Université de Nantes, France.

We gratefully acknowledge the support of many colleagues, who spent considerable time in reviewing the papers in their area of expertise. Special thanks are due to Prof. K. Scrivener, Editor-in-Chief of *Cement and Concrete Research*, who was instrumental in implementing and editing this special issue. The final selection for this issue was made by the Editor in accordance with the number of the accepted workshop papers. Finally, we would like to thank all participants for their excellent contributions.

[1] Due to a mistake in the editorial office, two papers from the workshop have already been published in earlier issues of Cement and Concrete Research. These are:

— Stephane Berger, Celine Cau Dit Coumes, Patrick Le Bescop, Denis Damidot, 'Hydration of calcium sulfoaluminate cement by a $ZnCl_2$ solution: Investigation at early age' Cem Conc Res 39(12) (2009) 1180–1187. DOI: 10.1016/j.cemconres.2009.08.003.

— N.C. Collier, N.B. Milestone, 'The encapsulation of $Mg(OH)_2$ sludge in composite cement' Cem Conc Res 40(3) (2010) 452–459. DOI: 10.1016/j.cemconres.2009.10.007.

The Managing Editor apologises to the authors and to our readers for this error.

doi:10.1016/j.cemconres.2010.04.007

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