

Sustainable Construction Materials 2012



ASCE

Edited by Shaopeng Wu
Liantong Mo
Baoshan Huang



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SUSTAINABLE CONSTRUCTION MATERIALS 2012

PROCEEDINGS OF THE SECOND INTERNATIONAL
CONFERENCE ON SUSTAINABLE CONSTRUCTION
MATERIALS—DESIGN, PERFORMANCE, AND APPLICATION

October 18–22, 2012
Wuhan, China

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Southeast University, China
Arizona State University, USA
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The University of Tennessee, USA

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Preface

Sustainable Construction Materials 2012 selects 37 papers that represent the latest developments in construction materials that support sustainable development for infrastructures.

Many of the selected papers were presented at the Second International Conference on Sustainable Construction Materials: Design, Performance and Application which occurred from October 18 – 22, 2012 in Wuhan, Hubei Province of China. The conference was hosted by the Wuhan University of Technology in collaboration with the Delft University of Technology in Netherland, Eindhoven University of Technology in Netherland, Southeast University in China, Arizona State University in USA, International Society for Concrete Pavements (ISCP), the American Society of Civil Engineers (ASCE), and the University of Tennessee, Knoxville in USA.

The papers presented within the *Sustainable Construction Materials 2012* Special Technical Publication are divided into two groups. The first group contains 20 papers which examine sustainable application of cementitious materials. Within this group a global perspective is provided on sustainable construction practices in a developing country. Additionally, more fundamental research is explored through the study of rheological behavior of fresh cement mortar and the examination of the effects of small recycled aggregate fractions in concrete production. The use of recycled materials such as waste tire rubber and rubber powder is also studied. The second group of papers contains 17 papers focused on bituminous material. A focus is placed on the use of waste material in asphalt cement such as reclaimed asphalt pavement (RAP), crumb rubber, and coal tar pitch. Studies were conducted to evaluate behavior of SBS and PE modified asphalt cement during the asphalt aging process. Pavement life, an important factor of sustainability, is presented with respect to fatigue life and a study of a new maintenance solution for porous asphalt cement pavements. Furthermore a study which examines different conditions in which volatile organic compound emission is influenced in asphalt cement is provided.

Two or more reviewers along with the editors evaluated each paper published in this ASCE Special Technical Publication (STP). All published papers are eligible for discussion in the *Journal of Materials in Civil Engineering*, and are eligible for ASCE awards.

We would like to acknowledge the great support from Laura Ciampa and Marvin Oey from the ASCE Construction Institute (CI) that makes it possible for this high quality peer reviewed Special Technical Publication. Most importantly, we would like to thank the peer reviewers who spent their time and efforts in ensuring the exceptional

quality of the papers presented within this STP. Without their contributions this publication would not be possible.

Cong Peiliang, Chang'an University
Guiming Wang, Wuhan University of Technology
Han Jun, Zhejiang University
Husken Gotz, Bundesanstalt für Materialforschung und -prüfung
Lambert J.M. Houben, Delft University of Technology
Limbachiya Mukesh, Kingston University
Lin Juntao, Wuhan University of Technology
Liu Gang, Delft University of Technology
Liu Honghai, Chang'an University
Liu Quantao, Delft University of Technology
Liu Xiaoming, Central South University
Ma Tao, Southeast University
Mo Liantong, Wuhan University of Technology
Pradena Mauricio, Delft University of Technology
Qian Shunzhi, Southeast University
Ren Dongya, Delft University of Technology
Rudman Chantal, University of Stellenbosch
Wang Dapeng, Highway Research Institute, MOC, Beijing
Wang Hainian, Chang'an University
Wang Ji, Wuhan University of Technology
Wang Jingang, University of Stellenbosch
Wei Chen, Wuhan University of Technology
Xiao Yue, Delft University of Technology
Yan Shilin, Wuhan University of Technology
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Ye Qunshan, Changsha University of Science and Technology
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