

Mohd Haziman Bin Wan Ibrahim ·  
Shahiron Shahidan · Hassan Amer Algaifi ·  
Ahmad Farhan Bin Hamzah ·  
Ramadhansyah Putra Jaya

# Properties of Self-Compacting Concrete with Coal Bottom Ash Under Aggressive Environments

Mohd Haziman Bin Wan Ibrahim  
Faculty of Civil Engineering and Built  
Environment  
Jamilus Research Centre, Universiti Tun  
Hussein Onn Malaysia, Batu Pahat Johor,  
Malaysia

Shahiron Shahidan  
Faculty of Civil Engineering and Built  
Environment  
Jamilus Research Centre, Universiti Tun  
Hussein Onn Malaysia, Batu Pahat Johor,  
Malaysia

Hassan Amer Algaifi  
Faculty of Civil Engineering and Built  
Environment  
Jamilus Research Centre, Universiti Tun  
Hussein Onn Malaysia, Batu Pahat Johor,  
Malaysia

Ahmad Farhan Bin Hamzah  
National Hydraulic Research Institute  
of Malaysia (NAHRIM)  
Selangor, Malaysia

Ramadhansyah Putra Jaya  
Civil Engineering Department  
College of Engineering  
Universiti Malaysia Pahang  
Kuantan, Pahang, Malaysia

ISSN 2191-530X ISSN 2191-5318 (electronic)  
SpringerBriefs in Applied Sciences and Technology  
ISBN 978-981-16-2394-3 ISBN 978-981-16-2395-0 (eBook)  
<https://doi.org/10.1007/978-981-16-2395-0>

© The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2021  
This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.  
The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.  
The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd.  
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore