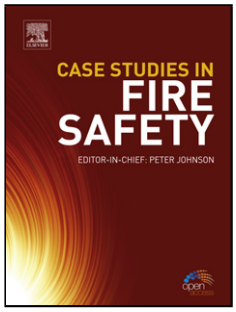

Title: Effect of sustained load and seawater and sea sand concrete environment on durability of basalt- and glass-fibre reinforced polymer (B/GFRP) bars

Authors: Zike Wang, Xiao-Ling Zhao, Guijun Xian, Gang Wu, R.K. Singh Raman, Saad Al-Saadi

PII: S0010-938X(17)32045-0
DOI: https://doi.org/10.1016/j.corsci.2018.04.002
Reference: CS 7467

To appear in:

Received date: 15-11-2017
Revised date: 1-4-2018
Accepted date: 2-4-2018

Please cite this article as: Wang Z, Zhao X-Ling, Xian G, Wu G, Raman RKS, Al-Saadi S, Effect of sustained load and seawater and sea sand concrete environment on durability of basalt- and glass-fibre reinforced polymer (B/GFRP) bars, *Corrosion Science* (2010), https://doi.org/10.1016/j.corsci.2018.04.002

Effect of sustained load and seawater and sea sand concrete environment on durability of basalt- and glass-fibre reinforced polymer (B/GFRP) bars

Zike Wang [1, 2], Xiao-Ling Zhao *[2], Guijun Xian [3], Gang Wu [4], R.K. Singh Raman [5, 6] and Saad Al-Saadi [5]

[1] School of Mechanics and Engineering Science, Zhengzhou University, Zhengzhou 450001, China

[2] Department of Civil Engineering, Monash University, Clayton, VIC 3800, Australia (*corresponding author, Email: ZXL@monash.edu)

[3] School of Civil Engineering, Harbin Institute of Technology, Harbin 150090, China

[4] International Institute for Urban Systems Engineering, Southeast University, Nanjing 210096, China

[5] Department of Mechanical and Aerospace Engineering, Monash University, Clayton, VIC 3800, Australia

[6] Department of Chemical Engineering, Monash University, Clayton, VIC 3800, Australia

Highlights

- A large number of FRP tensile specimens were tested after exposure to SWSSC corrosive solution
- Coupling of stress, corrosion and temperature significantly accelerates the degradation of FRP bars
- Scanning electrical microscopy (SEM) was adopted to analyse degradation mechanism
- Long-term predictions of BFRP/GFRP bars using the current model are conservative

ABSTRACT