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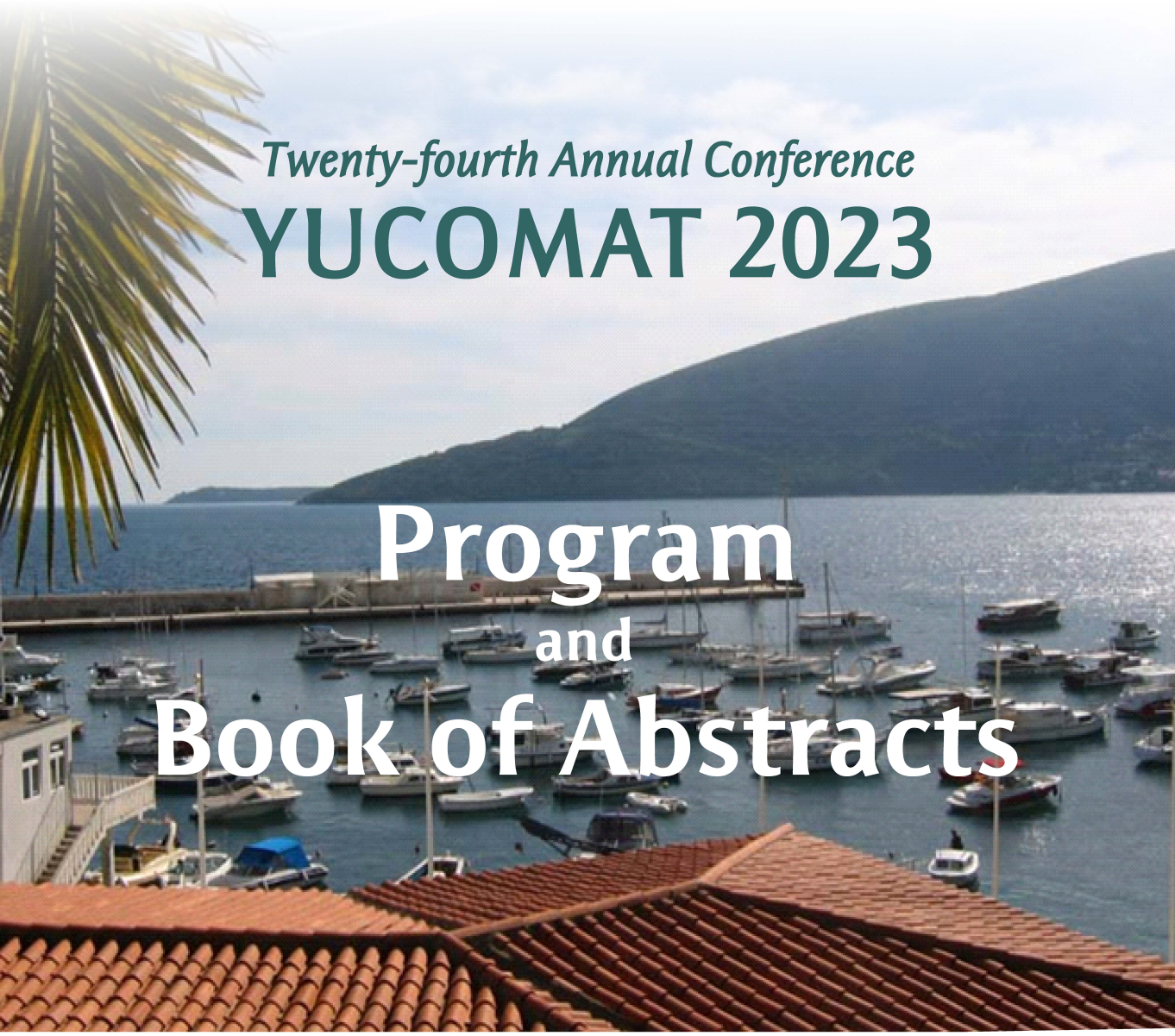

Twenty-fourth Annual Conference

YUCOMAT 2023

Program and Book of Abstracts

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FEDERATION OF EUROPEAN MATERIALS SOCIETIES

Materials Research Society of Serbia

24 conference

SERBIA MRS

YUCOMAT 2023

Herceg Novi, Montenegro :: September 4-8, 2023

TWENTY-FOURTH ANNUAL CONFERENCE

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Hunguest Hotel Sun Resort, Herceg Novi, Montenegro
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Endorsed by
Federation of European Material Societies

CIP – Каталогизација у публикацији
Народна библиотека Србије, Београд

66.017/.018(048)
621.762.5)048)

DRUŠTVO za istraživanje materijala Srbije (Beograd). Godišnja konferencija (24 ; 2023 ; Herceg Novi)
Programme ; and The Book of Abstracts / Twenty-fourth Annual Conference YUCOMAT 2023, Herceg Novi, Montenegro, September 4 - 8, 2023 ; organized by Materials Research Society of Serbia ; [editor Dragan P. Uskoković]. – Belgrade : Materials Research Society of Serbia, 2023 (Herceg Novi : Biro Konto). - XLVII, 183 str. : ilustr. ; 24 cm

Tiraž 220. – Bibliografija uz pojedine apstrakte. - Registar.

ISBN 978-86-919111-8-8

a) Наука о материјалима -- Апстракти b) Технички материјали -- Апстракти
v) Синтеровање -- Апстракти

COBISS.SR-ID 122486537

Title: THE TWENTY-FOURTH ANNUAL CONFERENCE **YUCOMAT 2023**
Program and Book of Abstracts

Publisher: Materials Research Society of Serbia
Knez Mihailova 35/IV, P. O. Box 433, 11000 Belgrade, Serbia
Phone: +381 11 2185-437; http://www.mrs-serbia.org.rs

Editor: Prof. Dr. Dragan P. Uskoković

Conference Secretary: Jasmina R. Jevtić

Technical editor: Dr. Ivana Dinić

Typesetting and prepress: Dr. Aleksandar Dekanski

Covers: Front cover photo: property of MRS Serbia
Back cover photo: J. Erskine-Kelli, Attribution-ShareAlike 2.0 Generic (CC BY-SA 2.0)

ISBN 978-86-919111-8-8

MRSS is member of the
Federation of European Materials Societies

Printed in: **Biro Konto,** Sutorina bb, Igalo – Herceg Novi, Montenegro
Phones: +382-31-670123, 670025, E-mail: bkonto@t-com.me

Circulation: 220 copies. The end of printing: August 2023

O.S.37.

Solidified wastewater treatment sludge as a prospective supplementary cementitious material for processing pervious concrete pavements

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Waste and recycled materials have recently been used in the construction industry in order to reduce environmental pollution. This study was focused on the possibility of using of solidified wastewater treatment sludge, Neutral, in the production of lightweight pervious concrete pavers (LWPCP). For this purpose a series of four LWPCP materials mixed with Neutral in different amounts (0, 10, 20 and 30 wt.%) were prepared, characterized and their physical and mechanical properties were analysed. It is shown that partial replacement of cement with Neutral in LWPCP resulted in the decrease of all mechanical properties, ranging between 3.91 and 5.81 MPa for compressive strength and 0.97 to 1.23 MPa for flexural strength. The investigated materials showed a value higher than 3.5 MPa, which was defined as the lowest compressive strength in the range of pervious concrete properties. The addition of Neutral slightly decreased the bulk density of the materials and increased water absorption. This could be explained by the reduction in hydration products that would fill in the micropores of the materials, since Neutral showed no pozzolanic reactivity. Pore sizes in the tested materials were in accordance with the results measured on concrete.

Acknowledgement: This work was supported by the Science Fund of the Republic of Serbia through the project Zero-waste concept for flood resilient cities (0-Waste-Water).