



LABORATÓRIO NACIONAL
DE ENGEHARIA CIVIL



RILEM
TC-251-SRT



WORKSHOP ON EXTERNAL SULFATE ATTACK

PORTUGAL • LISBON • LNEC
November 3-4, 2016

Programme

Organized by:



LABORATÓRIO NACIONAL
DE ENGEHARIA CIVIL



RILEM
TC-251-SRT

Chairs:

Veronique Baroghel-Bouny
Isabel Martins
Esperanza Menéndez

Scientific committee:

Carmen ANDRADE
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Othman OMIKRINE-METALSSI
Klaas VAN BREUGEL
Yuri Andres VILLAGRAN ZACCARDI
Kai-tai WAN
Claudio ZEGA

3 November Sessions 1, 2 and 3

Inscription & Coffee 10,00h to 10,30h

Opening session 10,30h to 10,50h

Key note 10,50h to 11,20h

Chair: Veronique Baroghel-Bouny

Karen Scrivener

Switzerland

PERSPECTIVES ON TESTING RELATED TO FIELD PERFORMANCE

Session 1. Testing & influence of mix-parameters 11,20h to 12,40h

Chair: Yury Villagran

Adrien Cabrerizo, Franck Cassagnabère and Laurie Lacarriere

France

EXTERNAL SULPHATE RESISTANCE OF LOW PH CONCRETE

Esperanza Menéndez, Ricardo García-Roves, Veronique Baroghel-Bouny, Beatriz Aldea and

Sergio Ruíz

Spain/France

COMBINATION OF IMMERSION AND SEMI-IMMERSION TEST TO EVALUATE
CONCRETES MANUFACTURED WITH SULFATE RESISTANCE CEMENTS

Luís Carranca, Isabel Martins and Jorge de Brito

Portugal

INFLUENCE OF RECYCLED COARSE AGGREGATES ON CONCRETE UNDER
EXTERNAL SODIUM SULPHATE ATTACK

Kolawole Olonade

Nigeria

RESISTING SULPHATE ATTACK ON CONCRETE USING BIO-ADMIXTURES - A
POTENTIAL APPROACH IN SUB-SAHARAN AFRICA

12,40h – 14,40h Lunch

Session 2. Testing & influence of mix-parameters

14,40h to 16,00h

Chair: Esperanza Menéndez

Georges Massaad, Emmanuel Rozière, Ahmed Loukili and Laurent Izoret

France

EXTERNAL SULFATE ATTACKS: ADVANCED TESTING AND PERFORMANCE SPECIFICATIONS

Fabrizio Moro and Andreas Leemann

Switzerland

SULFATE RESISTANCE TESTING, MORTAR VS. CONCRETE TESTING

Xu Ma, Oğuzhan Çopuroğlu, Erik Schlangen, Ningxu Han and Feng Xing

Nederland/China

DEGRADATION OF CEMENT PASTE IMMERSSED IN SODIUM SULFATE SOLUTIONS

Maranda Johnston, Kunal Kupwade-Patil, Rehab Masmoudi, Ali Bumajdad and Oral Buyukozturk

USA

SULFATE ATTACK ON CEMENT PASTE WITH VOLCANIC ASH: DURABILITY ANALYSIS

16,00h – 16,30h Coffee

Session 3. Field aspects

16,30h to 18,10h

Chair: Isabel Martins

Abdel Hafid Ben Ammar, M'Hammed Merbouh, Nabil Bella, Ilham Aguida Bella and Bachir Glaoui

Algeria

SAND MINERALOGY EFFECTS ON EXTERNAL SULFATES RESISTANCE OF CONCRETE CURED IN HOT CLIMATE

Yuichiro Kawabata, Natsuki Yoshida, Shoichi Ogawa and Kazuo Yamada

Japan

EXTERNAL SULFATE ATTACK IN JAPAN –A REVIEW–

Natsuki Yoshida

Japan

SULFATE ATTACK ON RESIDENTIAL CONCRETE FOUNDATIONS IN JAPAN

Lautaro R. Santillán, Yury A. Villagrán Zaccardi, Damián E. Benito and Claudio J. Zega

Argentina

SULFATE INGRESS IN RECYCLED CONCRETE IMMERSSED IN SODIUM SULFATE SOLUTION FOR 10 YEARS

Rim Ragoug, Othman Omikrine Metalssi, Jean-Michel Torrenti, Fabien Barberon, Loïc Divet and Nicolas Roussel

France

EXTERNAL SULFATE ATTACK - INFLUENCE OF AN EARLY AGE EXPOSURE, COUPLING WITH THE CEMENT COMPOSITION

4 November

Sessions 4 and 5

Session 4. Testing & influence of mix-parameters

9,30h to 10,30h

Chair: Karen Scrivener

Ilham Aguida Bella, Nabil Bella and Aissa Asroun

Algeria

COMPARATIVE STUDY ON THE SULFATE MILIEU ATTACKS EFFECT ON CONCRETE BASED ON LIMESTONE ADDITIONS AT CURING TEMPERATUR

Eduardo Teixeira, Camila Medeiros, Marcos Padilha Júnior, João Rossignolo and Normando

Perazzo

Brasil

CONCRETE WITH RECYCLED AGGREGATES: PHYSICAL PROPERTIES AND EXTERNAL SULFATES ATTACK

Eloy Asensio de Lucas, César Medina Martínez, Isabel Fuencisla Saéz del Bosque, Blas Cantero Chaparro, Moisés Frías Rojas and María Isabel Sánchez de Rojas Góme

Spain

SULFATE-RESISTANCE IN BLENDED CEMENTS WITH FIRED CLAY-BASED ADDITIONS

10,30h – 11,00h Coffee

Session 5. Mechanisms and modeling

11,00h to 12,00h

Chair: Veronique Baroghel-Bouny

Nam Nghia Bui, Matthieu Vandamme, Jean Pereira and Remi Barbarulo

France

EXPERIMENTAL STUDY OF STRESSES INDUCED IN MODEL CEMENT-BASED MATERIALS BY IN-PORE CRYSTALLIZATION

Sara Boudali, Sébastien Poncet, Bakhta Boukhatem, Bahira Abdulsalam, Ahmed Soliman and Djamel Eddine Kerdal

Canada/Algeria

MODELING EXPANSION OF SCC PREPARED WITH RECYCLED CONCRETE AGGREGATE DUE TO EXTERNAL SULPHATE ATTACK USING ARTIFICIAL NEURAL NETWORKS

Tai Ikumi, Sergio Cavalaro, Ignacio Segura, Albert de La Fuente and Antonio Aguado de Cea

Spain

SIMPLIFIED MODEL TO ASSESS THE DURABILITY OF ELEMENTS SUBJECTED TO EXTERNAL SULPHATE ATTACK: INFLUENCE OF SHAPE AND SIZE OF THE ELEMENTS