RILEM TC HFC
High Performance Fibre Reinforced Cement-based Composites

1st Meeting, Varenna, Italy, Sept. 20, 2004

Subcommittee on Testing
- SC 1 -

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Present Situation

• No consensus on engineering representation of mechanical performance

• No consensus or standardization of testing methods

• Little research into the relation between testing methods (specimen size, geometry, boundary conditions...) and results
Example: direct tension test of strain hardening material, input/output

material input

"output, stiff"

"output, flexible"

individual extensometers

average measurements
Major topics to be dealt with

1. Engineering representation of HPF RCC mechanical performance
2. QA test methods
3. Performance spec./research test methods
4. Advanced test methods
Aims and Work Program I

Engineering (simplistic) representation of mechanical performance – Link to SC 3:

- Definition of basic mechanical properties
- Assessment of implementation in structural analysis
- Assessment of simplifications introduced (compare with more complete models)
- Other effects: fatigue, creep, relaxation, ....
Aims and Work Program II

QA test methods – Link to SC 3
- Configuration: bending
- Manufacture
- Geometry, size, boundary conditions
- Loading arrangements
- Measurements
- Analysis, back analysis? – Identification
- Parameter sensitivity
Aims and Work Program III

Performance spec. and research test methods
- Configuration: tension
- Manufacture
- Geometry, size, boundary conditions, grips
- Loading arrangements and history
- Measurements: strain, cracks, fiber integrity
- Analysis, back/forward analysis? – Identification
- Parameter sensitivity
Aims and Work Program IV

**Advanced testing:**
- Fatigue
- Impact
- Creep and relaxation
- Link to SC 2 on durability
- ......
Deliverables

• State of the art on engineering properties and test methods – with SC 3
• Report on engineering properties of HPFRCC – with SC 3
• Preliminary recommendations for testing
• Round Robin report
• Final recommendations for testing – with SC 2 and 3.