



Students' Competition

Prediction of the behaviour of reinforced recycled aggregates concrete (RAC) beams

Report no. 2

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1. INTRODUCTION

This report has been developed in the scope of Students' Competition - Prediction of the behaviour of reinforced recycled aggregates concrete (RAC) beams. It includes results about shrinkage and creep of RAC characterization. This experimental work has been mainly developed at the Civil Engineering Department of Polytechnic Institute of Coimbra.

2. SHRINKAGE AND CREEP OF RAC

The shrinkage of RAC used to cast the beams has been assessed since early ages, according to the LNEC specification E 398-1993 (as reported in 'Rules, schedule and prizes'). For this purpose, two prismatic specimens of 150 mm x 150 mm x 600 mm were used. Figure 1 includes a photo of the monitored specimens, as well as the results obtained. Tabulated values can be found using the following link: <https://bit.ly/3xsSmTY>

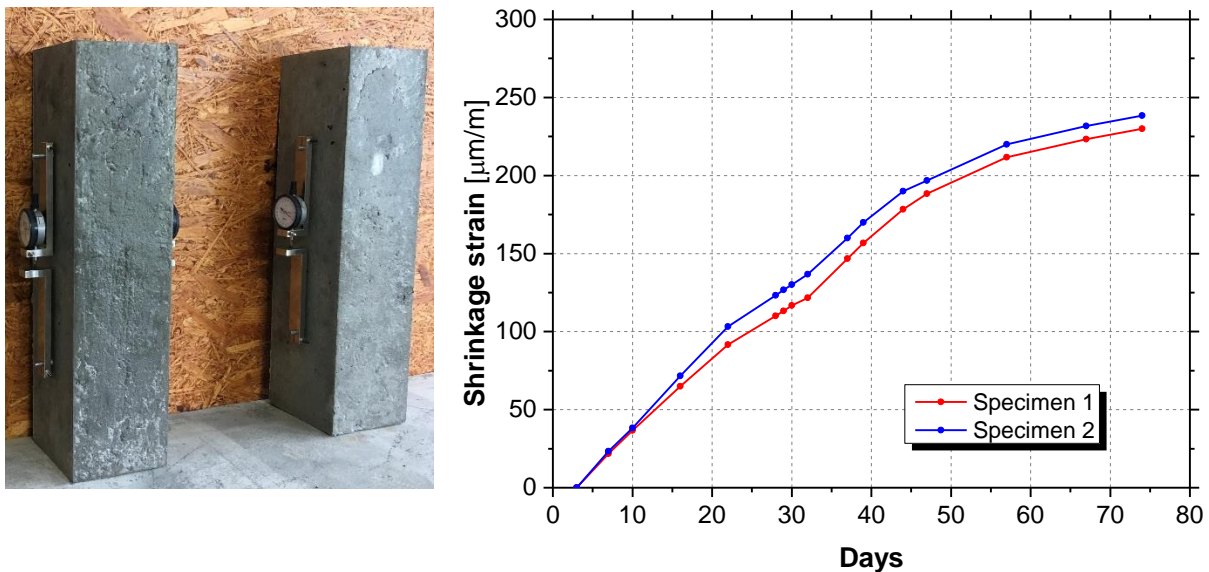


Figure 1: Shrinkage strain assessment.

The creep behaviour of RAC used to cast the beams was assessed according to the LNEC specification E 398-1993 (as reported in 'Rules, schedule and prizes'). For this purpose, two prismatic specimens of 150 mm x 150 mm x 600 mm were used. The specimens were loaded at 28 days of concrete age with a load level of 30% (Specimens 1 and 2) and 60% (Specimens 3 and 4) of the mean compressive strength. Figure 2 includes a photo of the monitored specimens, as well as the results obtained. Tabulated values, including the instantaneous strains, can be found using the following link: <https://bit.ly/3xsSmTY>

The tabulated thermo-hygrometric conditions of all specimens and beams used in this competition can be found using the following link: <https://bit.ly/2Nf1zNa>

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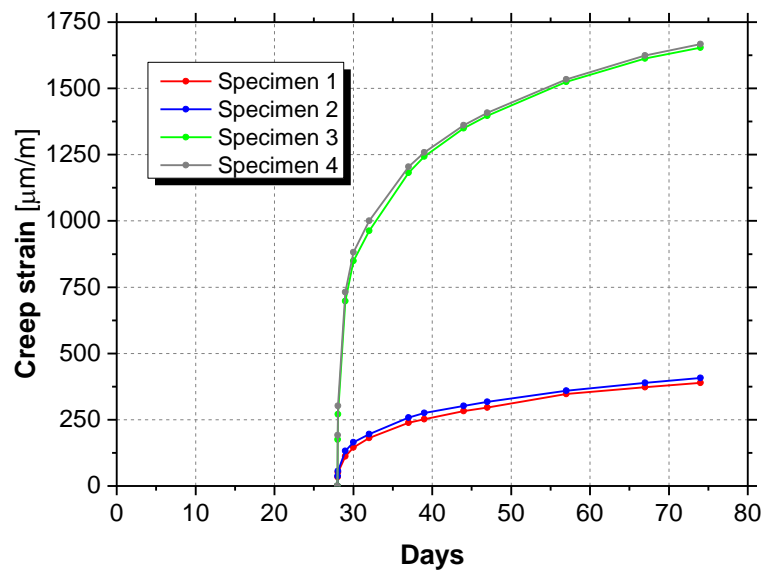


Figure 2: Creep strain assessment.