



Adhesive epoxy compound

The fixing of the CFRP laminate onto the concrete was performed with an Articola[®] epoxy compound (Biu Internacional 2000), made up of two parts of an epoxy adhesive and one part of a hardening component (proportions in weight).

For assessing the tensile behaviour of the epoxy adhesive, five specimens, depicted in Figure 7, were tested by using the same equipment and measurement devices described for the uniaxial tensile tests performed for the CFRP laminates. These tests were carried out according to the recommendations of ISO 527-3:1997. To increase accuracy in the measurement of the forces, a load cell with 5 kN maximum load bearing capacity was used.

Figure 8 shows the uniaxial stress-strain curve obtained in the tests performed. With an exception for the specimen number 4, the set of specimens exhibited similar uniaxial stress-strain curves. However, in what concerns the tensile strength the differences are significant, which may be related to the spurious voids observed in the fracture surfaces (see Figure 9). In the fracture surface of specimen number 4 imperfections reduced solely to micro-voids, whereas in the fracture surfaces of the other specimens voids with considerable sizes were observed (see Figure 9). A Young modulus equal to 5.09 ± 0.59 GPa was obtained for the adhesive epoxy compound.

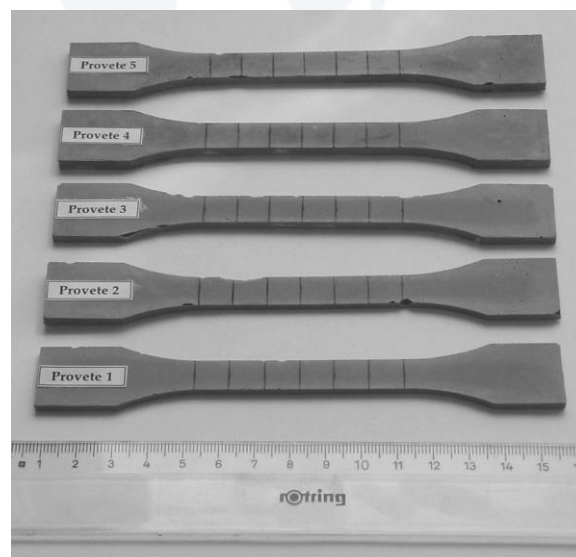


Figure 7. Tensile specimens of adhesive epoxy compound.

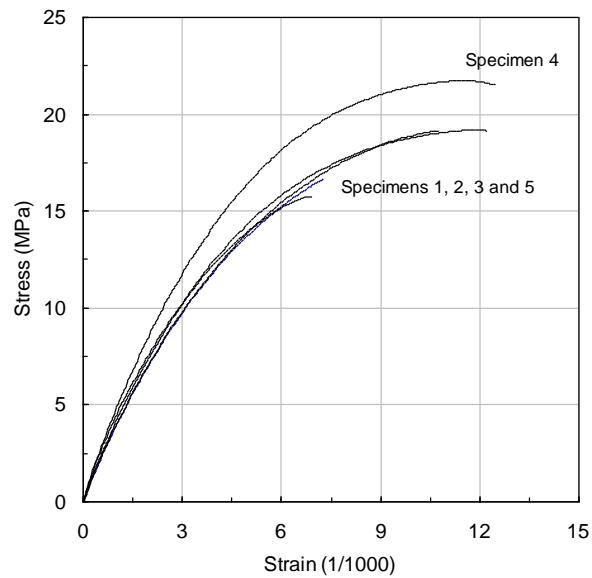


Figure 8. Tensile stress-strain curves for the epoxy adhesive specimens.



Figure 9. Voids on the fracture surfaces of the epoxy adhesive specimens.

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