

Cem-Kote Flex Plus - Crack Spanning Test

PROCEDURE

The crack spanning of Cem-Kote Flex Plus was carried using instrument shown below. The instrument was fabricated by modifying a "machinist" vise that assures precise pull movement without introducing any torsion to the specimen. The specimen is made of 12 mm thick block of fibre cement board, 3 mm wide and 75 mm long. It consists of two equally long blocks joined together by a layer of tested material, in this case Cem-Kote Flex Plus. The typical thickness of the Cem-Kote layer is 3 mm. Two blocks form a "hairline " separation (crack). By pulling the blocks are separated, the crack is opened and the layer of Cem-Kote Flex extends. At one point a crack appears in the material. The movement of the vise is measured using a Vernier. The movement is equal to crack opening.

The measurement is carried out at ambient temperature. By placing the specimen in the bath of dry ice and alcohol, low temperature extensibility can be measured. The results of the testing are summarized in the Table below. The results include testing of Cem-Kote Flex Plus without reinforcement and with the Reinforcing Fabric HD reinforcement. In either case the first crack is recorded.



Testing Vise

TEST RESULTS (average 5 specimens)

Ambient temperature 23 °C, non-reinforced specimen, thickness 3 mm
Extension at the first crack (mm) 0.8 mm

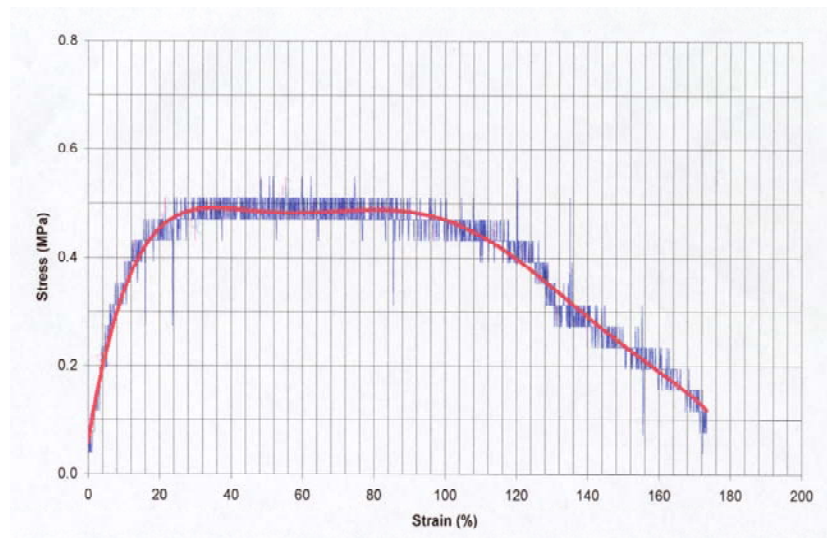
Ambient temperature 23 °C, reinforced specimen, thickness 3 mm
Extension at the first crack (mm) 3.1 mm

Ambient temperature -23 °C, non-reinforced specimen, thickness 3 mm
Extension at the first crack (mm) 0.2 mm

Ambient temperature -23 °C, reinforced specimen, thickness 3 mm
Extension at the first crack (mm) 0.9 mm

Note: *The crack spanning does not decrease at temperatures below -23 °C since this temperature is already below the T_g (glass transition) temperature of the polymer used*

The tensile stress strain curve for non-reinforced Cem-Kote Flex Plus is given in the Figure below.



Cem-Kote Flex Plus - Tensile Stress Strain Curve

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