

Títol: ANÁLISIS DEL TRAC
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The aim of these are to help The Rincent B.T.P. Society to understand the behaviour (deterioration and splitting) of a new material called TRAC. Various compression tests have been realised.

The TRAC is a conglomerate with a caoutchouc granular base and a hydraulic binder. The relation caoutchouc- hydraulic binder chosen will allow us to obtain the material with the adequate properties for its final use.

The material exterior physic aspect has allowed us to chose the method of analyse. The presence of granulate and hydraulic binder of different colours distributed on the tests pieces and the possibility of having tests pieces with plane surfaces has given us the chance of using the analyse method of Image Correlation. This method allows us to determine with precision which is the final deformation of this new material.

Various experiments will be done wring this method. We will be able to film step by step the deformation process and to analyse the displacements of each one of the different parts of the test piece.

Before realizing the experiments a close-up inspection of all the factors involved in the test is made: the camera, the test piece, the machine, the image tuning, etc.

For the TRAC analyse two different granulometries have been used: 2-3 mm, the minimal size which preserves the properties of caoutchouc, and 3-5mm, because a bigger size will be too easily peeled of the matrix of the material.

The first experiment is used to verify an essential element of data: the compression stress. For the test we have used a test piece of 40x40x70 mm³, with 28% of cement and a granulometry between 3-5mm.

Afterwards, three other tests have been done to establish the breakdown mode.

The compression experiments using uniformly distributed load is realized with "compression platen". For this test the piece used is 40x40x70 mm³ with a 28% of cement and a granulometry between 2-3mm and 3-5mm. We can realize the separation process between the grains from a linear compression area. A supplementary compression experiment charge/discharge cycle shows the material viscoelastic performance.

Compression experiments using point load. During this test it has been used a test piece of 70x70x70 mm³, with the 28% of hydraulic binder and a granulometry between 2-3mm and 3-5mm. We note that the type of load interferences in the material response. The "pointe" generates a range of high tensions stress. We obtain the breakdown faster on the test piece with a lowest force.

Compression experiments using semi-uniformly distributed load. During this test, it has been used a 70x70x100 mm³ with the 28% of hydraulic binder and a granulometry between 2-3mm and 3-5mm. In the extremes we find a high concentration of shearing forces. This, creates a cone area form under the "pointe" where the material degradation occurs.