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LABORATORY :

STRUCTURES (SC)

TEST REPORT

N° DE, DAT, RE : DE 611XB125

N° Labo : SC 0740

N° Samples : 2008/02/010

REQUESTED BY : Belgian Fibres NV
Industrial boulevard 91
7700 Mouscron

Contact persons :

- Requestor -
 P. De Busschere

- BBRI -
 E. De Grove

Test carried out : Determination of vebe times for Belgian Fibres

References : NBN EN 12350-3: "Testing fresh concrete - Part 3: Vebe test"

EN 14889-1 "Fibres for concrete - Part 1: Steel fibres - Definitions, Specifications and conformity"

Date and reference of the request : 31/01/2008

Date of receipt of the sample(s) : 10/01/2008

Test date : 22/01/2008

Date of the report : 29/01/2008

This report contains 4 pages, numbered from 1/4 to 4/4 ; it may only be reproduced in its entirety.
 Each page of the original report has been stamped (in red) by the laboratory and initialled by the head of laboratory.

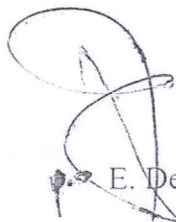
The results and findings are only valid for the tested samples.

☒ No sample

☐ Sample(s) submitted to a destructive test

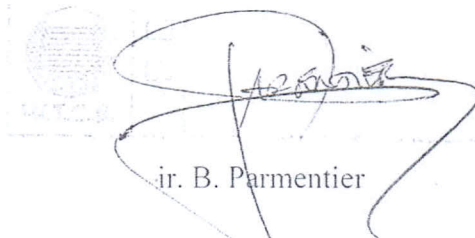
☐ Sample(s) to be removed from our laboratories 60 calendar days after sending of the report, unless a written request is received by the demander of the test

In charge of the test



E. De Grove

The Deputy Head of Division



ir. B. Parmentier

Technical assistance : L. Tisseghem, S. Hustin, J. Sneyers



1. Introduction

At the request of **BELGIAN FIBRES NV**, represented by Mr De Busschere, the Belgian Building Research Institute (BBRI) has achieved Vebe tests in accordance to the NBN EN 12350-3 "Testing fresh concrete - Part 3: Vebe test". The concrete was mixed at the BBRI laboratory and the influence of the fibre on the consistency of the fresh concrete was investigated.

2. Identification of the fibre types and the concrete mixture

Three types of synthetic fibres were used in this research. These fibres were delivered at the BBRI Test Facility on January, 10th 2008 by the demander. The different fibre types are shown in Table 1. The samples are recorded in the reception registry of BBRI with the numbers listed in column 2 of Table 1.

Table 1: Used fibre types.

Fibre type	Specimen Number:	Reception date:
6mm	2008-02-010	10/01/2008
12mm	2008-02-010	10/01/2008
18mm	2008-02-010	10/01/2008

The concrete composition is described in Table 2. This reference concrete complies with the requirements of EN 14845-1 "Test methods for fibres in concrete - Part 1: Reference concretes".

Table 2: Concrete Mix Proportions.

Component	Type	for 1m ³ (kg)
Cement	CEM I 42,5 R HES	275
Water	W/C = 0.55	151
Sand	0/5	986
Aggregates natural, uncrushed and silica- based	4/14	986



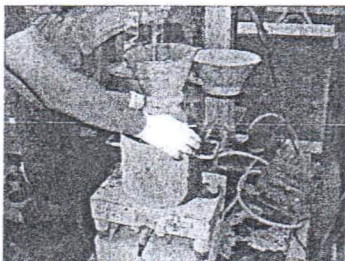

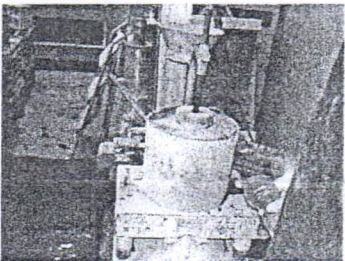
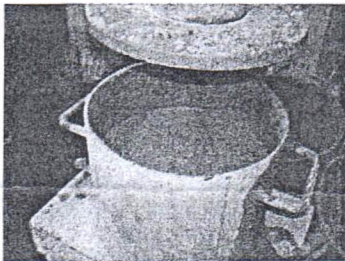
3. Tests

The procedure of the Vebe tests is described in the standard NBN EN 12350-3.

All the tests were realised on January 22th 2008 at the testing laboratory of the BBRI.

The test set-up and the execution of the tests is illustrated below in Table 3.

Table 3 : Vebe-test

 Figure 1: Compacting the concrete	 Figure 2: Filling the cone
 Figure 3: Vibrating the concrete	 Figure 4: End of test

For the reference concrete without fibres, 3 Vebe tests were performed. After that, for each reference concrete with a specific fibre type (See Table 4), 3 Vebe tests were achieved.

The fibres were added to the reference concrete at different dosages which are shown in Table 4.

Table 4: Fibres dosage.

Fibre type:	Dosage (g/m ³):
6mm	600
12mm	600
18mm	900



4. Test results

In Table 5, the results for the Vebe tests on the reference concrete without fibres are listed.

Table 5: Test results for the Vebe test: Reference concrete (without fibres)

Mixture N°	Vebe time [s]
1	8
2	9
3	7

In Table 6 the results for the Vebe tests on the different concrete mixtures are listed.

Table 6: Test results for the Vebe test.

6mm

test	Vebe time [s]
1	9
2	9
3	7

12mm

test	Vebe time [s]
1	7
2	8
3	9

18mm

test	Vebe time [s]
1	10
2	16
3	14

In Table 7 the average results for the Vebe tests on the different concrete mix are presented.

Table 7: Average values of the Vebe time for the different fibre types.

Fibre type:	Vebe time [s]:
6mm	8.3
12mm	8
18mm	13.3
Blanco	8