
LABORATORY DEVELOPED METHOD 06

TEST METHOD FOR REPAIRS TO GLASS FIBRE REINFORCED CONCRETE PRODUCTS

DURABILITY

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1 SCOPE

This document specifies a laboratory developed test method to determine the durability of repairs carried out to cured GRC products either at the production location or after transportation and installation at the construction site.

2 Symbols and Abbreviations

2.1 Symbols

md Mass of a specimen after drying “dry mass”

2.2 Abbreviations

GRC Glass fibre reinforced concrete

3 Apparatus

The apparatus required comprises:

A scale with a range of 0kg-2kg accurate to 0.1g

A ventilated drying oven which can be maintained at a constant temperature of $(33 \pm 3) ^\circ\text{C}$

A heated circulating water bath with an internal working area of approximately 575(L)x280(W)x190(D) and capable of maintaining a temperature of $(20 \pm 2) ^\circ\text{C}$

A freezer capable of reaching a temperature of $(-20 \pm 2) ^\circ\text{C}$ within 1-2 hours when fully loaded with specimens.

4 Procedure

4.1 Test specimens

Manufacture a sample as illustrated in Figure 1 using the same methods as will be used in the production of the products it represents. The sample shall include the facing or mist coat. Note it may be more suitable to manufacture a larger sample and saw out the specimen using a suitable stone cutting disc.

After 24 hours demould and store for 2 days under the same conditions as for the actual production they represent.

An repair area as illustrated in Figure 1 should be created using a suitable method which replicates either demoulding or post cast impact damage. The area should be approximately 75mmx75mm when unfolded.

The area shall be repaired following the written procedure prepared by either the manufacturer or installer and approved for use on the products.

The repair should be allowed to age for a minimum of 14 days before testing. .

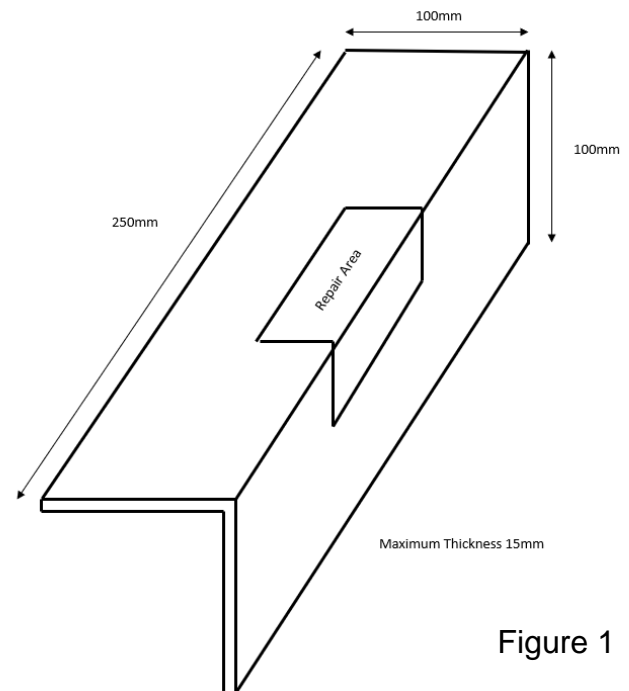


Figure 1

4.2 Test method

Place the specimen in the oven and record the weight until it reaches constant mass “*md*” when the difference between the two weight results 24hr apart is less than 0.1%

Place in the oven which shall reach a temperature of (33 +/- 3)°C within 1hr to 2hr and hold at this temperature for a further 1hr.

Remove and place the specimen in the water bath which shall reach a temperature of (20 +/-2)°C within 1hr to 2 hr and hold at this temperature for a further 1hr

Remove, towel dry, and place in the freezer which shall reach a temperature of (-20+/- 2)°C within 1hr to 2 hr and hold at this temperature for a further 1hr

Each cycle shall take between 4hr and 8hr but an interval of 72hr maximum can be taken between cycles. During this period the specimens shall be stored in water at (20 +/- 2) °C.

After the completion of 25 cycles the specimen shall be left in the oven until it reaches constant mass “*md*” when the difference between the two weight results 24hr apart is less than 0.1%

5 Test Report

The test report shall detail:

- Manufacturers details
- Facing mix reference
- GRC mix reference
- Date of repair
- Start date of test
- Finish date of test
- *md*¹ prior to testing
- record of cycles – times and duration
- *md*² after testing
- Weight loss in grams
- Weight loss in percentage
- Visual observations of any degradation of the repair area or loss of repair material

EXAMPLE TEST REPORT

TEST RESULT - DIHM SOP 601

MANUFACTURER:
FACING MIX REF:
GRC MIX REF:
DATE OF REPAIR
TEST START DATE:
TEST FINISH DATE:

<i>md</i> ¹	
<i>md</i> ²	
WT LOSS	
% LOSS	

STAGE 1 Place in oven
STAGE 2 Immerse in water bath
STAGE 3 Place in freezer
STAGE 4 Immerse in water bath

CYCLE REF	DATE	STAGE 1 (time)	STAGE 2 (time)	STAGE 3 (time)	STAGE 4 (time)	TOTAL TIME	CYCLE REF	DATE	STAGE 1 (time)	STAGE 2 (time)	STAGE 3 (time)	STAGE 4 (time)	TOTAL TIME
1							13						
2							14						
3							15						
4							16						
5							17						
6							18						
7							19						
8							20						
9							21						
10							22						
11							23						
12							24						
							25						

VISUAL OBSERVATIONS OF REPAIR AREA

TESTED BY:

DATE: