



BASF Construction Chemicals, LLC

A Report by Technical Services

Rogers Block

Water Repellency Testing

Indianapolis, Indiana

Master Builders

Rogers Block

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Indianapolis, Indiana

INTRODUCTION

The Technical Services Laboratories of BASF Construction Chemicals, LLC received six sets of concrete masonry units. Testing was requested to evaluate the water repellency characteristics of the samples and determine if the samples meet the water repellency certification requirements established and administered by BASF Construction Chemicals, LLC.

SAMPLE PREPARATION AND METHODS

The BASF Construction Chemicals, LLC Water-Repellent Admixture test program consists of four to five testing procedures that are used to determine if the submitted block specimens meet the stringent requirements of water repellency certification. A brief outline of each testing procedure is given below.

Puddle Retention Test – A single CMU sample is arranged face up on a level surface and approximately 0.5 fluid ounces of water is placed on three different areas of the block face. The water beading characteristics of the sample is visually determined during one hour test period.

Wicking Resistance – A single CMU block sample is partially submerged in water of a depth of approximately 1-2 in. The average height of capillary rise is measured to the nearest millimeter at the conclusion of a 24 hour submersion period.

Low Pressure Permeation Test – The results of low-pressure permeability testing are a function of flow vs. time and calculated pressure. The data generated are translated into an estimated wind-driven rain resistance equivalent. This test procedure is similar in nature to the RILEM 11.4 permeation test. Although the hydrostatic pressure levels of the RILEM 11.4 or low pressure permeability test procedures can estimate the sustained wind-driven rain conditions of ASTM E 514, there is no direct correlation between the measured results due to substantial variations within the methods themselves.

RESULTS OF WATER REPELLENCY TESTING

The results of water repellency testing are presented in Table 1. The mix identification and design criteria for each sample set tested are also included.

Table 1 – Water Repellency Certification Testing Results

MIX ID	1	2	3	4	5	6
Mix Design Data						
Rheopel Plus, oz/cwt	4.0	5.0	6.0	3.0	3.5	4.0
Batch Wts, lbs						
Type III cement	531	531	531	423	423	423
Fine aggregate	1598	1598	1598	2466	2466	2466
#12 aggregate				1242	1242	1242
Haydite	1775	1775	1775			
Density, lbs/ft³	96.0	98.3	95.5	128.9	132.4	133.7
Absorption, %	13.1	11.7	12.2	7.5	6.5	5.9
Absorption, lbs/ft³	12.6	11.5	11.7	9.6	8.5	7.9
Puddle Retention						
60 minutes	Y	Y	Y	Y	Y	Y
Wicking						
Capillary rise, cm	0.3	0.3	0.3	0.2	0.2	0.2
Water Permeation						
15 minutes, cm	10.0	11.0	10.9	10.5	12.0	12.6
30 minutes, cm	8.6	10.8	9.4	9.3	12.0	12.2
45 minutes, cm	6.0	9.8	8.9	8.5	12.0	12.0
60 minutes, cm	4.0	8.2	8.8	7.6	10.8	11.8
Wind driven rain, mph	55.1	78.8	81.7	75.9	90.5	94.6
ASTM C 90 Weight Classification Certification Result	Light Pass	Light Pass	Light Pass	Normal Pass	Normal Pass	Normal Pass

CONCLUSION

Results of this evaluation have established the qualified minimum Rheopel Plus dosage rate of 3.0 fluid ounces per 100 pounds of cementitious materials for the submitted normal weight mix design and at a dosage rate of 4.0 fluid ounces per 100 pounds of cementitious materials for the submitted lightweight mix design. A certificate stating such conformance is attached below. Printed copies of the water repellency certificate can also be requested by contacting your local BASF Construction Chemicals, LLC sales representative. This report and certificate may be used as supporting documentation for project submittals.

WATER REPELLENCY CERTIFICATE

Limited Warranty:

Every reasonable effort is made to apply BASF Construction Chemicals, LLC exacting standards both in the manufacture of our products and in the information, which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products but also upon many factors beyond our control. Therefore, except for such replacement BASF CONSTRUCTION CHEMICALS, LLC MAKE S NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and BASF Construction Chemicals, LLC shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in printed recommendations concerning the use of our products must bear the signature of the BASF Construction Chemicals, LLC Technical Manager. Other warranties are available from BASF Construction Chemicals, LLC however, this warranty shall apply in the absence of any other written warranty signed by an authorized representative of BASF Construction Chemicals, LLC.