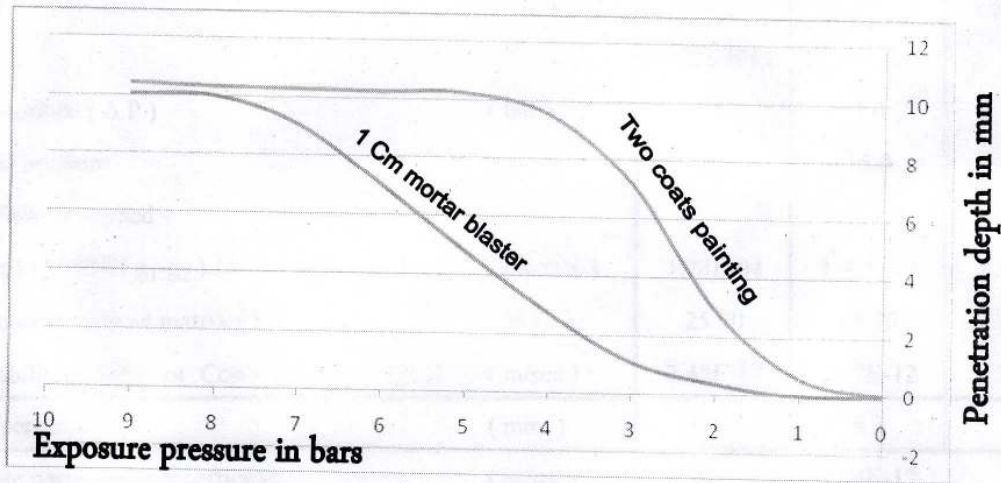


Certificate

Due to the test run by **Misir Raymond** lab and dated 04-04-2011, three cubes of concrete containing WR and painted with WR paint. WR paint is made by mixing WR with other chemicals and cement (known commercially as Pharaproof). Two coats were applied to the surfaces of the cubes. The next day, a permeability test was held as described in the shown procedures. Results of the test came up as reported in the attached report.

The report shows that a max penetration depth of about 9.1 mm occurred in an environment of exposed to 3 bars of water head pressure. This result complies with the specifications of WR. WR paint on cementitious surfaces can resist up to 3 bars of water head pressure. If included in mix if concrete or mortar, each 1 cm thickness can resist up to 7 bare of water head pressure.

The graph shows the behavior of concrete and/or mortar cured by WR against water penetration in different water pressure attacks.



WR water resisting with different pressure environments

Technical manager
Eng. Khalid Basyouni

halid
M. B.

مركز الإضافات الأسمنتية
ت: ٥٧٧٥٩٠٩
شارع صالح على - چناكليس
إسكندرية

ALEXANDRIA CHAMBER OF COMMERCE
MR I Khalid, M.A.A. Basyouni
PEN FOR LEGALIZATION OF SIGNATURE WITHOUT
ANY RESPONSIBILITY UPON THE ALEXANDRIA
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INFORMATION INCLUDED
GENERAL DIRECTOR CHAIRMAN

DATE 14/4/2011 CERTIFICATE NO. 251



ت: ٥٧٧٥٩٠٩ / ٠٣ موبایل
٠١٤٦٣٨٩٦

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بارة ٨٥ تعاونيات سموحة ش الفتح سموحة ت : ٩٥٧٥٧٤٠

GERMANN'S WATER PERMIABILITY TEST

Date : 04/04/2011

Client : مركز الاضافات الاسمنتية

Plant Location : جناكليس

Class of Concrete : Cubes painted with

Testing Element : Cubes 150 x 150 mm.

Delivery Date : 31/03/2011

Sample No. : 1

Type of Cement : OPC Amrya

Client Reference : QX 363

Item	1	2	3
Date of Casting			
Date of Testing	04/04/2011		
Water Pressure applied (ΔP) (bar)	3.0	3.0	3.0
Period of applied pressure (min)	15.0	15.0	15.0
Rate of Water Flow at applied - pressure (flux q) = $0.026 (g_1 - g_2) / t$ (mm/sec)	1.24E-04	1.01E-04	8.96E-05
Percentage of concrete cement matrix (b) (%)	25.70	25.70	25.70
Concrete permeability Coefficient $C_{cp} = q / \{ b (\Delta P / L) \}$ (m/sec)	2.42E-12	1.97E-12	1.74E-12
Depth of water penetration (mm.)	10.7	8.7	7.7
Average Concrete permeability Coefficient (m/sec)	2.04E-12		
Average depth of water penetration (mm.)	9.1		

Remarks :

Curing concrete with WR paint resulted in completely stopping water penetration at about (9.1) mm under (3) bars over pressure condition.

Tested By :

Tech. A. Hassanen

