REPORT

Finja Bemix AB
Andreas Haldin
Finvids väg 6
194 04 Upplands Väsby

Testing of hydrophobic impregnation for the protection of concrete structures – Prevention of chloride ingress
(2 appendices)

1   Assignment

Testing of *Bemix Condur Creme* hydrophobic impregnation product on concrete with respect to prevention of chloride ingress and infrared analysis. The tests were carried out in accordance with the directions of NT BUILD 515, Edition 1, *Hydrophobic impregnations for Concrete – Prevention of chloride ingress – Filter effect.*

These test results have been published in report 6P00354 A 2016-10-28 for the same product, under another product name.

2   Test schedule

The test objects and scope of the test are shown in table 1. The tests were carried out between May and October 2016.

Tabel.1. Test schedule for treated and untreated concrete samples

Property	Method	Test object	
		Measurements Dimensions (mm)	Number
Prevention of chloride ingress – filter effect	NT BUILD 515	100x100x50	3 treated 3 untreated

The concrete and the test specimens were produced and stored at RISE in Borås in accordance with the directions of EN 1766. Tests were carried out on "Type MC(0.45)".

Bemix Condur Creme batch nr EB 25448, which arrived at RISE on 26 April 2016, was applied by RISE in accordance with the manufacturer's recommendations. An amount equivalent to approximately 400 g/m^2 was applied to the test surface of each test specimens.

The amount of impregnation product applied was checked by weighing. RISE has no other information relating to the substance and its sampling.

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3 Results

The chloride profiles of the test specimens was then determined as the Cl^- level in % of the weight of the concrete in six steps down to a depth of 25 mm in accordance with EN 14629:2007 *Products and systems for the protection and repair of concrete structures – Test methods – Determination of chloride content in hardened concrete.*

The results of the determination of the chloride profile is shown in diagram 1 as the mean of results from three specimens. The measurement data is reported in Appendix 1.
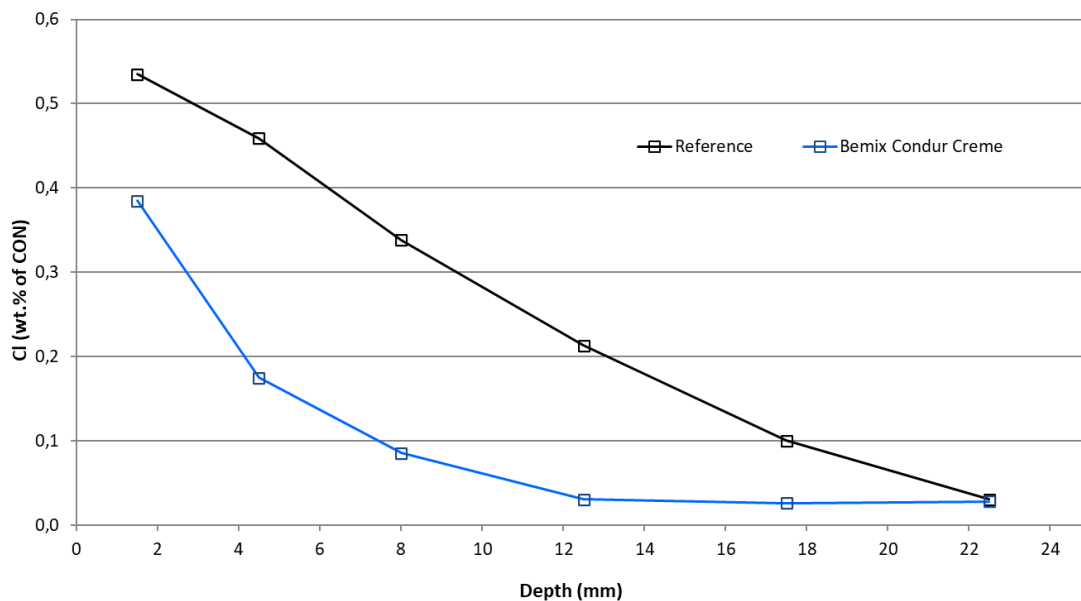
Diagram 1. Chloride content

4 Comments

The tested hydrophobic impregnation product, *Bemix Condur Creme*, meets the requirement of AMA Anläggning 23, LFB.311. The calculated filter effect (FE_{25}) is 0.68 which is higher than the requirement on minimum value, which is 0.60.

RISE Research Institutes of Sweden AB
Infrastructure and Concrete technology - Material Lab

Performed by

Pavlos Ollandezos

Appendices

1. Test schedule.
2. Test results of the determination of the chloride content.

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Appendix 1

NT-Build 515

MC(0,45) 100x100x100	Datum	Referens	Bemix Condur Creme	
Tillverkning	2016-05-23	R	EB 25448	
Vattenlagring	2016-05-24			
20±2C				
Sågning, 100x100x50	2016-06-20	3	3	
Vinkelrätt överytan				
inga håligheter ≥ Ø5 mm				
Försegling med epoxi	2016-06-20	R1	CC1	
20±2C, 65±5 RF		R2	CC2	
ca 2-3 h efter sågning		R3	CC3	
2 st appliceringar				
Limning av gummiduk	2016-06-22		CC1	
20±2C, 65±5 RF			CC2	
			CC3	
				4g
Applicering	2016-06-27		CC1	1111,30
20±2C, 65±5 RF	10:15			1115,38
				4,08
			CC2	1220,18
				1224,23
				4,05
			CC3	1197,32
				1201,40
				4,08
Start exp i 15% NaCl-lösning	2016-07-25	R1	CC1	
20±2C		R2	CC2	
Separata behållare		R3	CC3	
Kontroll efter 14 resp 28 dygn				
Avslut exponering	2016-09-19	R1	CC1	
Provkroppar torkas		R2	CC2	
Placeras i plastpåsar		R3	CC3	
Sedan i 5±2C				
Svarvning start tidigast	2016-09-19	R1	CC1	
avslutas senast	2016-09-26	R2	CC2	
Dock inom max två dagar efter start		R3	CC3	
Beh/obeh svarvas parallellt				
Torkning	2016-09-19	R1	CC1	
105±5C		R2	CC2	
		R3	CC3	
Förvaring av betongpulver		R1	CC1	
skyddas mot CO2 och fukt		R2	CC2	
fram till kloridanalys		R3	CC3	

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Appendix 2

Max depth	Middle	Thickness	Reference								Bemix Condur Creme							
			REF1	REF2	REF3	Avg	Avg-bg	Std	COV (%)	CI/step	CC1	CC2	CC3	Avg	Avg-bg	Std	COV (%)	CI/step
step [mm]	[mm]	[mm]				(fig)								(fig)				
3	1,50	3,00	0,518	0,538	0,549	0,535	0,506	0,016	3	0,061	0,315	0,396	0,443	0,385	0,355	0,065	17	0,043
6	4,50	3,00	0,439	0,466	0,472	0,459	0,430	0,018	4	0,052	0,158	0,220	0,146	0,175	0,145	0,040	23	0,017
10	8,00	4,00	0,323	0,355	0,337	0,338	0,309	0,016	5	0,049	0,067	0,105	0,084	0,085	0,056	0,019	22	0,009
15	12,50	5,00	0,208	0,205	0,227	0,213	0,184	0,012	6	0,037	0,026	0,040	0,026	0,031	0,001	0,008	26	0,000
20	17,50	5,00	0,092	0,091	0,118	0,100	0,071	0,015	15	0,014	0,019	0,033	0,026	0,026	-0,003	0,007	27	-0,001
25	22,50	5,00	0,020	0,033	0,039	0,031	0,001	0,010	32	0,000	0,021	0,035	0,028	0,028	-0,001	0,007	25	0,000
Total		25								0,213								0,068
Filter effect (FE$_{25}$)																		0,68

Verifikat

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Dokument

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Pavlos Ollandezos (PO)
RISE Research Institutes of Sweden AB
Org. nr 556464-6874
pavlos.ollandezos@ri.se

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