REPORT

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Reference
1191708 B

CapiNord AB
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Testing of hydrophobic impregnation for the protection of concrete structures – Prevention of chloride ingress

(2 appendices)

1 Assignment

Testing of *Pica Silan 1701* hydrophobic impregnation product on concrete with respect to prevention of chlordie 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 B 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)”.

Pica Silan 1701 batch nr KH 13145, which arrived at RISE on 26 April 2016, was applied by RISE in accordance with the manufacturer’s recommendations. An amount equivalent to approximately 130 g/m2 was applied to the test surface of each test specimen (applied by dipping, 3 times for 5 min each with an interval of 15 min).

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

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.

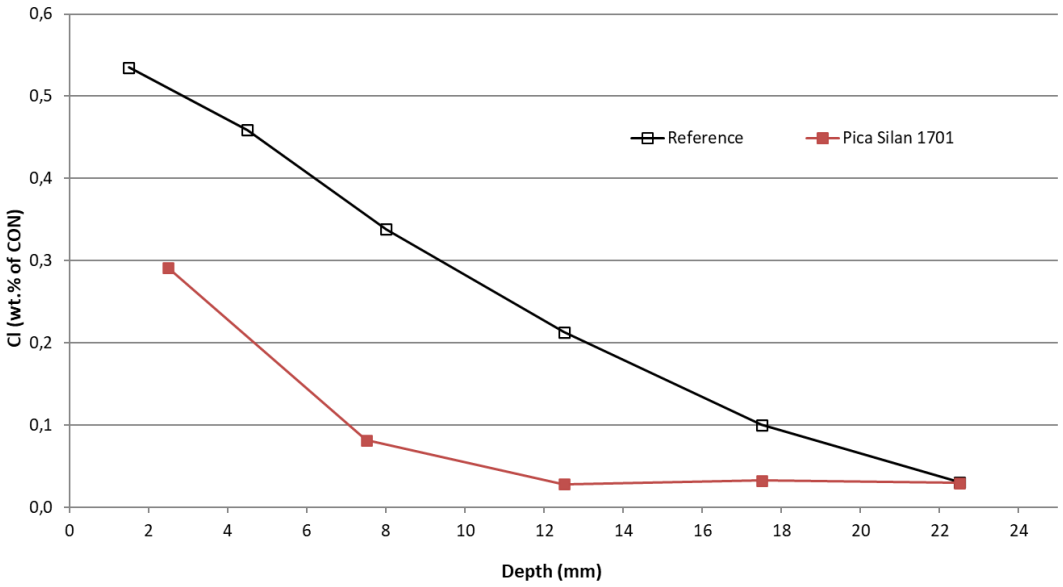

Diagram 1. Chloride content

4 Comments

The tested hydrophobic impregnation product, *Pica Silan 1701,* meets the requirement of AMA Anläggning 23, LFB.311. The calculated filter effect (FE_{25}) is 0.71 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

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Appendices

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

Appendix 1

NT-Build 515				
MC(0,45) 100x100x100	Datum	Referens	*Pica Silan 1701*	
Tillverkning	2016-05-23	R	*KH 13145*	
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*	*BS1*	
20±2C, 65±5 RF		*R2*	*BS2*	
ca 2-3 h efter sågning		*R3*	*BS3*	
2 st appliceringar				
Limning av gummiduk	2016-06-22		*BS1*	
20±2C, 65±5 RF			*BS2*	
			BS3	
Applicering	2016-06-27		*BS1*	1111,31
20±2C, 65±5 RF	10:15			1112,23
				0,92
			BS2	1192,00
Pica Silan 1701: 3 gånger				1192,94
5 min i vätskan				*0,94*
15 min i luft			*BS3*	1112,73
				1113,49
				0,76
	10:35		*BS1*	1112,24
				1112,63
				0,39
			BS2	1192,96
				1193,30
				0,34
			BS3	1113,52
				1113,85
				0,33
	10:55		*BS1*	1112,59
				1112,66
				0,07
			BS2	1193,28
				1193,35
				0,07
			BS3	1113,82
				1113,91
				0,09
Start exp i 15% NaCl-lösning	2016-07-25	*R1*	*BS1*	
20±2C		*R2*	*BS2*	
Separata behållare		*R3*	*BS3*	
Kontroll efter 14 resp 28 dygn				
Avslut exponering	2016-09-19	*R1*	*BS1*	
Provkroppar torkas		*R2*	*BS2*	
Placeras i plastpåsar		*R3*	*BS3*	
Sedan i 5±2C				
Svarvning start tidigast	2016-09-19	*R1*	*BS1*	
avslutas senast	2016-09-26	*R2*	*BS2*	
Dock inom max två dagar efter start		*R3*	*BS3*	
Beh/obeh svarvas parallellt				
Torkning	*2016-09-19*	*R1*	*BS1*	
105±5C		*R2*	*BS2*	
		R3	*BS3*	
Förvaring av betongpulver		*R1*	*BS1*	
skyddas mot CO2 och fukt		*R2*	*BS2*	
fram till kloridanalys		*R3*	*BS3*	

Appendix 2

			Reference								Pica Silan 1701							
Max depth	Middle	Thickness	REF1	REF2	REF3	Avg	Avg-bg	Std	COV (%)	Cl/step	BS1	BS2	BS3	Avg	Avg-bg	Std	COV (%)	Cl/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*								
6	**4,50**	3,00	0,439	0,466	0,472	*0,459*	*0,430*	*0,018*	*4*	*0,052*	0,302	0,251	0,322	*0,291*	*0,262*	*0,037*	*13*	*0,052*
10	**8,00**	4,00	0,323	0,355	0,337	*0,338*	*0,309*	*0,016*	*5*	*0,049*	0,070	0,095	0,081	*0,082*	*0,052*	*0,012*	*15*	*0,008*
15	**12,50**	5,00	0,208	0,205	0,227	*0,213*	*0,184*	*0,012*	*6*	*0,037*	0,035	0,019	0,030	*0,028*	*-0,001*	*0,008*	*28*	*0,000*
20	**17,50**	5,00	0,092	0,091	0,118	*0,100*	*0,071*	*0,015*	*15*	*0,014*	0,028	0,022	0,046	*0,032*	*0,003*	*0,013*	*39*	*0,001*
25	**22,50**	5,00	0,020	0,033	0,039	*0,031*	*0,001*	*0,010*	*32*	*0,000*	0,025	0,028	0,036	*0,030*	*0,000*	*0,005*	*18*	*0,000*
Total		**25**								**0,213**								**0,061**
Filter effect (FE_{25})																		**0,71**

Verifikat

Transaktion 09222115557492178778

Dokument

1191708B_Pica Silan 1701
Huvuddokument
4 sidor
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Signerande parter

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Signerade 2023-05-05 08:22:58 CEST (+0200)