

02 | Wanhua Waterproof Coating Solutions

✓ JS waterproof paint

Mechanical property requirements for polymer modified waterproof mortar

Item		Technical indicators				
		I	II	III		
1	Solids	≥	70	70	70	
2	Tensile strength	Initial / Mpa	≥	1.2	1.8	1.8
		Heating treatment TS retention rate/%	≥	80	80	80
		Alkali treatment TS retention rate /%	≥	60	70	70
		Water treatment TS retention rate/%	≥	60	70	70
		UV treatment TS retention rate /%	≥	80	/	/
3	Elongation	Initial /%	≥	200	80	30
		Heating treatment/%	≥	150	65	20
		Alkali treatment /%	≥	150	65	20
		Water treatment /%	≥	150	65	20
		UV treatment /%	≥	150	/	/
4	Low temperature flexibility	≥	- 10 °C ,no crack	/	/	
5	Bonding strength	Initial /Mpa	≥	0.5	0.7	1
		Humid base/Mpa	≥	0.5	0.7	1
		Alkali treatment /Mpa	≥	0.5	0.7	1
		Water treatment/Mpa	≥	0.5	0.7	1
6	Impermeable (0.3MPa , 30min)	impermeable	impermeable	impermeable	impermeable	

- Excellent elongation and waterproof effect
- Good compatibility with cement
- Excellent alkali and water resistance.



Property	Data
Appearance	Milky white
Solids , %	55.0±1.0
pH	7.0-9.0
MFFT/°C	0
Brookfield (cps,3#, 60rpm,25°C)	500-1500

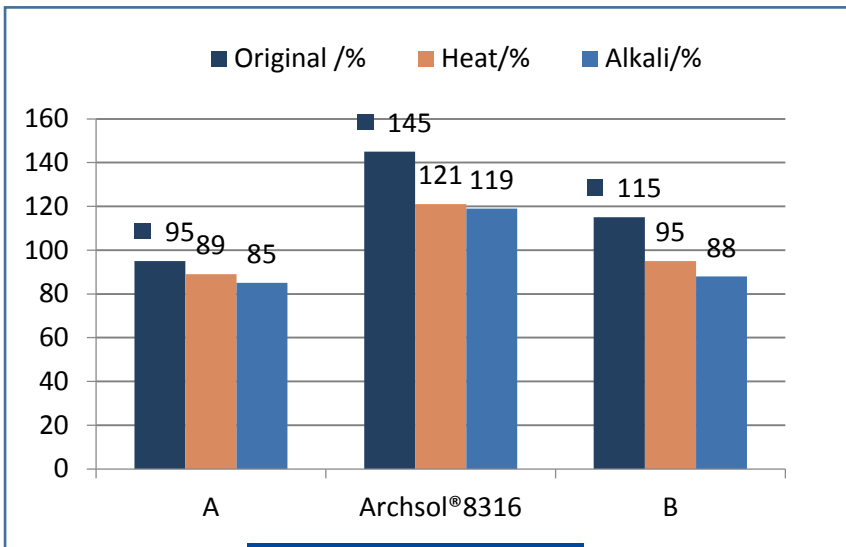
Note: the above for the typical physical properties, but should not be seen as the product specifications.

Performance comparison(type 2)

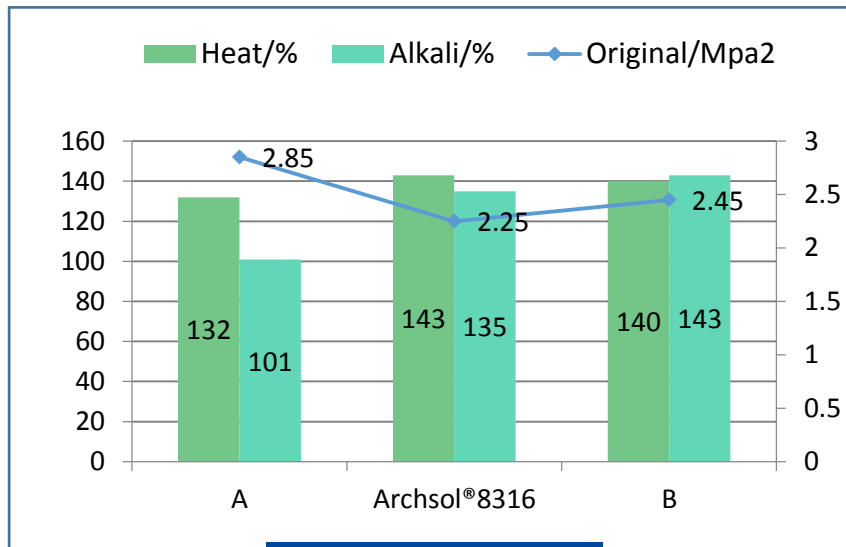


	Material	g
Liquid	WB PA	90.00
	bactericide(LXE)	0.10
	Deformer (NXZ)	0.20
	water	9.70
total		100.00

	Material	g
Powder	425 cement	75.00
	quartz sand/80	45.00
	coarse whiting/325	30.00
total		150.00



Elongation



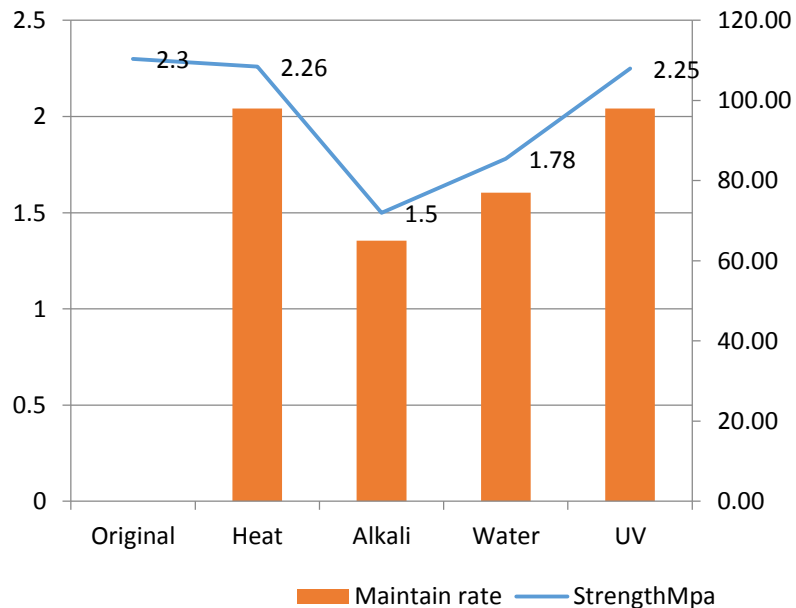
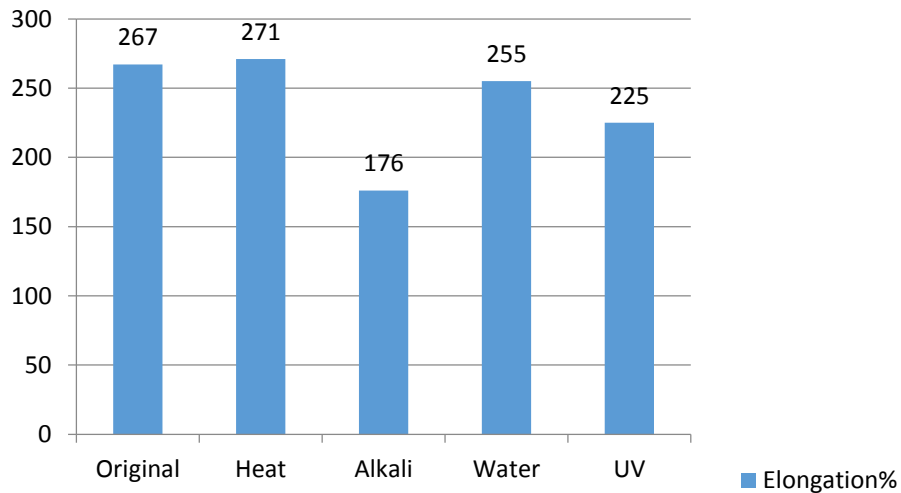
Strength

Performance of Archsol® 8316(type 2)



	Material	g
Liquid	WB PA	94.00
	bactericide(LXE)	0.10
	deformer(NXZ)	0.20
	thickener (A401)	0.20
	water	5.50
total		100.00

	Material	g
Powder	425cement	50.00
	quartz/80	20.00
	coarse whiting/325	30.00
total		100.00

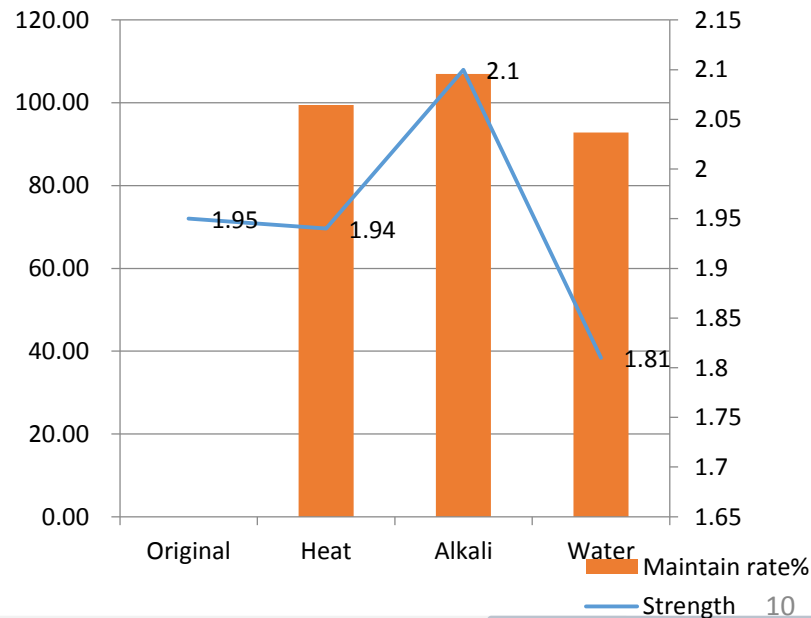
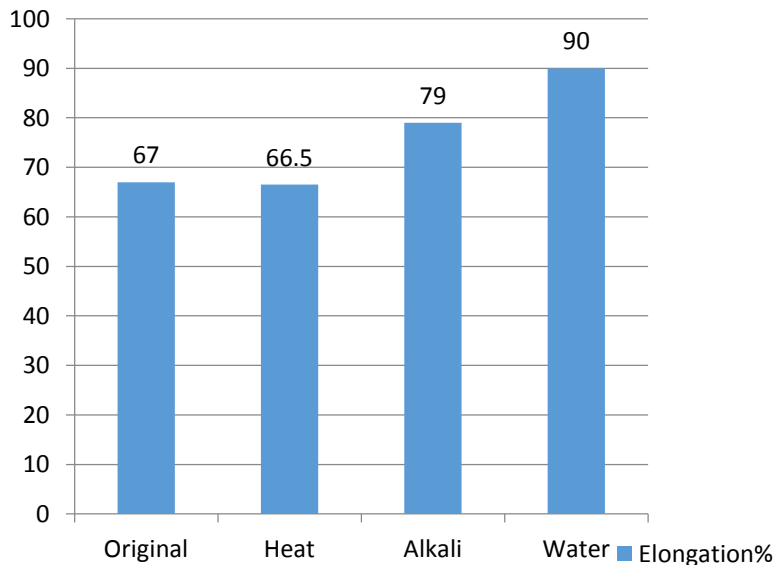


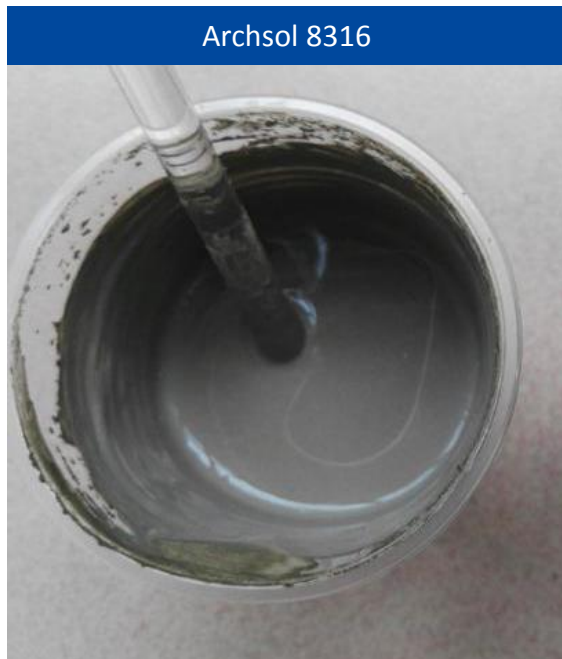
Performance of Archsol® 8316(type 3)



	Material	g
Liquid	WB PA	88.00
	bactericide(LXE)	0.20
	deformer(NXZ)	0.40
	dispersant (731A)	1.10
	water	10.30
	Total	100.00

Powder	425cement	117.50
	quartz/80	117.50
	coarse whiting/325	22.00
	total	257.00





Archsol 8316 shows good compatibility with cement, low odor



No obvious dry film whitening for Archsol 8316

02 | Wanhua Waterproof Coating Solutions

✓ PUD waterproof coating

PUD , a kind of environmental polymer materials with **green, safety, energy saving**, etc.

Waterborne polyurethane coating has the advantages of **low VOC, strong adhesion, abrasion resistance, good solvent resistance**, etc., and has broad application prospects in the building field.



Worker

When stirring, pungent odor makes staff breathless and sore throat.



Owner

Residual odor makes them worry about their health.

Main property requirements for solvent-based PU waterproof coating (no standards for PUD waterproof coating presently)

Item			Technical indicators		
			I	II	III
1	Solids/%	1k	85.0		
2	Touch drying speed/h	≤	12		
3	Hard drying speed/h	≤	24		
4	Tensile strength/MPa	≥	2.0	6.0	12.0
	Elongation/%	≥	500	450	250
5	Bonding strength/MPa	≥	1.0		
6	Water absorption/%	≤	5.0		
7	Heating treatment (80°C,168h)	Tensile strength retention rate/%	80-150		
		Elongation/%	450	400	200
8	Acid treatment (2%H ₂ SO ₄ , 168h)	Tensile strength retention rate/%	80-150		
		Elongation/%	450	400	200
9	Alkali treatment (0.1%NaOH+Saturated Ca(OH) ₂)	Tensile strength retention rate/%	80-150		
		Elongation/%	450	400	200

Products	Type	REACH	Appearance	Solids /%	Viscosity/cP	pH	Tensile Strength/MPa	Elongation/%
Archsol®8355	PUD	Y	Milky white	50±1	10-1000	6.0-9.0	35	700
Archsol®8407	PUD	Y	Milky white	50±1	20-1000	7.0-9.0	25	800
Archsol®8408	PUD	N	Milky white	60±2	20-1500	7.0-9.0	20	700

Note: the above for the typical physical properties, but should not be seen as the product specifications.

Archsol 8355

- Excellent adhesion
- Excellent mechanical property
- Outstanding weatherability

Archsol 8407

- Excellent elongation performance
- Good compatibility with fillers
- Alkali / water resistance

Archsol 8408

- High solid
- Excellent mechanical property
- Excellent comprehensive performance

No	Items		Archsol 8408	Archsol 8355	Archsol 8407
1	Tensile strength /MPa		5.0	3.7	4.5
2	Elongation / %		600	700	600
3	Bonding strength / MPa		2.7	1.7	2.1
4	Water absorption rate / %		4.1	8.5	5.5
5	Heat treatment	Tensile strength retention rate/%	140	140	130
		Elongation / %	720	620	650
6	Alkali treatment	Tensile strength retention rate/%	110	115	80
		Elongation / %	520	520	460
7	Acid treatment	Tensile strength retention rate/%	130	90	130
		Elongation / %	590	730	620
8	UVB, 500h, ΔE		1.85	0.66	0.92

Paint film preparation (total WFT 3.7mm):

first layer : 1.6mm(WFT), curing at 23'C/50%RH for 24hrs

second layer : 2.1mm(WFT)

Curing condition: 23'C/50%RH, 168h; Then test at 23'C/50%RH.



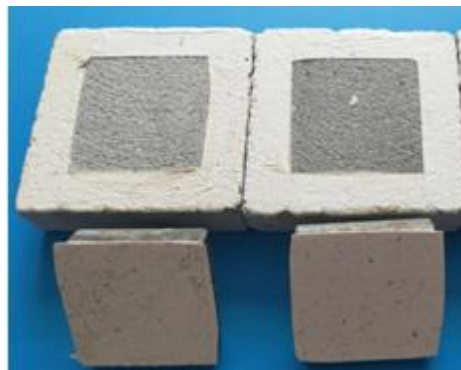
Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
Elongation/%	700	600	600
Tensile strength (MPa)	3.7	4.5	5.0

- ✓ PUD Waterproof coating has excellent mechanical properties, which pass GB/T19250-2013.

Bonding strength

Preparation: Paint twice on the 70 × 70mm mortar within 24hrs.

Curing condition: standard conditions, 168h; Bond the coating surface with upper clamp and place it horizontally for 24 hrs.



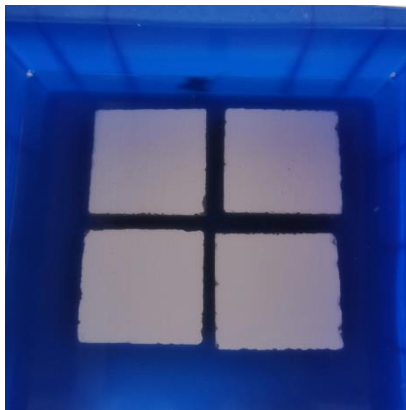
Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
Bonding strength/MPa (≥1.0)	1.7	2.1	2.7

✓ Bonding strength of PUD Waterproof coating is above the requirement.

Bonding strength after soaking in water

Preparation: Paint twice on the 70 × 70mm mortar within 24hrs.

Curing condition: standard conditions,168h,and then soaked in water, 7days; check whether the surface is bulging or falling off; Test bonding strength after drying for 24hrs at 50℃.



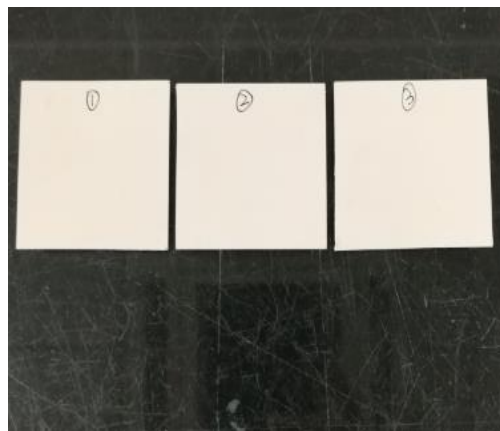
Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
bulging/falling off	NO	NO	NO
Bonding strength after soaking/MPa	2.2	2.3	2.5

- ✓ PUD Waterproof coating has no bulging or falling off after soaking, and keeps good adhesion.

Preparation: Cut the cured untreated film into 50×50 mm.

Curing condition: In 23 °C water, 168h;

Take it out, make its surface dry with filter paper, and weigh; Calculate water absorption.



Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
Water absorption/%(≤ 5)	8.5	5.5	4.1

Preparation: Cut the cured untreated film into 120×25mm.

Curing condition: 23 °C, 168h, and then standard conditions, 4hrs ; Test @standard conditions.



Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
Elongation/%	620	650	720
Tensile strength retention rate/%	140	130	140

- ✓ Mechanical properties of PUD waterproof coating with heating treatment pass GB/T 19250-2013.

Preparation: Cut the cured untreated film into 120×25mm.

Curing condition: In 2% H₂SO₄ aqueous solution, 168h, remove, rinse and wipe it dry;
@ 60 °C, 4hrs, and then @standard conditions 18hrs; Test @ standard conditions.



Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
Elongation/%	730	620	590
Tensile strength retention rate/%	90	130	130

- ✓ Mechanical properties of PUD waterproof coating with acid treatment pass GB/T 19250-2013.

Preparation: Cut the cured untreated film into 120×25mm.

Curing condition: In 0.1%NaOH and saturated Ca(OH)₂ aqueous solution,168h; remove, rinse and wipe it dry;
@ 60 °C for 4h, and then @ standard conditions, 18hrs; Test @ standard conditions.



Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
Elongation/%	520	460	520
Tensile strength retention rate/%	115	80	110

- ✓ Mechanical properties of PUD waterproof coating with alkali treatment pass GB/T 19250-2013.

ΔE test:

WFT 120um+80um on cement @standard conditions,
168h; QUV-B, 500h.



Sample	Archsol® 8355	Archsol® 8407	Archsol® 8408
UVB, 500h, ΔE	0.66	0.92	1.85

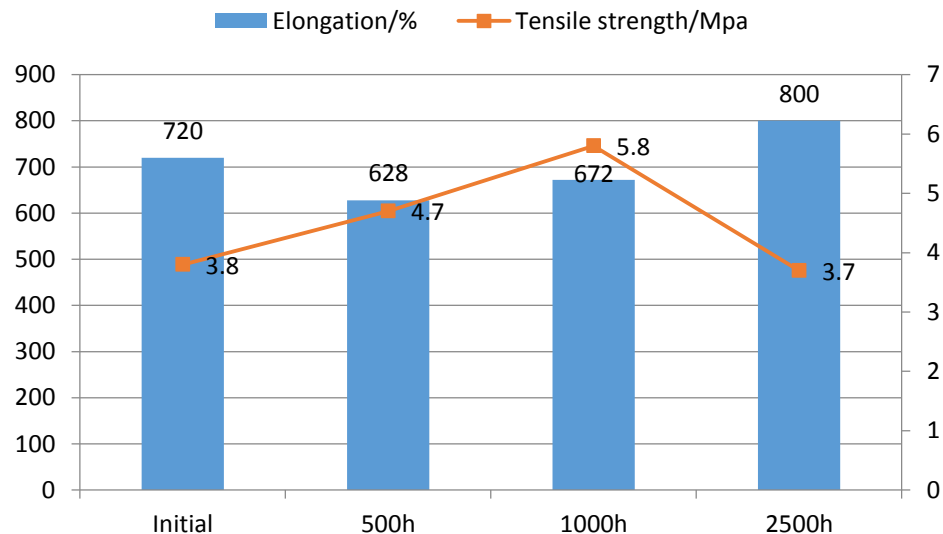
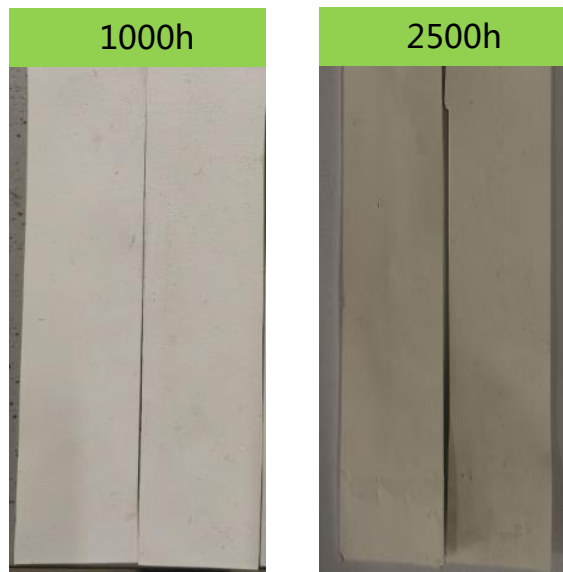
According to GB 1766-2008, $\Delta E \leq 1.5$ ~ No discoloration, ΔE is 1.6-3.0, ~ slight discoloration

Mechanical properties test:

Cured film, 120×25mm

Curing condition: QUV-A, illumination @ 0.72W, 60°C, 8h, condensate@ 50°C, 4h, cycle; for 500h, 1000h and 2500h;

Test @ standard conditions.



- ✓ The film keeps good mechanical properties after QUV-A 2500hrs, and there's no efflorescence.

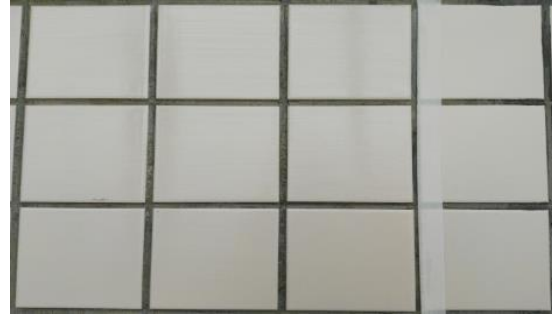
No.	Materials	Functions	Dosage
1	Water		107
2	250HBR	cellulose	1
3	BENTONE DY CE	rheology modifier	2
4	AMP-95	PH adjuster	1
5	731A	dispersant	10
6	BD109	wetting agent	4
7	NXZ	defoamer	2
8	SN154	defoamer	1
9	TiO2 R-996	pigment	180
10	BaSO4 800 mesh	filler	187
11	PG	Anti-freezer	40
12	water		30
13	NXZ	defoamer	1
14	U300	rheology modifier	3
15	U505	rheology modifier	0.5
16	SN154	defoamer	0.6
17	PUD		350
18	water		80
total			1000.1

02 | Wanhua Waterproof Coating Solutions

✓ Waterproof glue



Easy Construction



Transparent



Good flexibility, can cover tiny cracks



Suitable for high temperature & humidity environment

Archsol® 8331 is an anionic pure acrylic emulsion designed for transparent waterproofing membrane with excellent outdoor durability, water resistance and dirt pick-up resistance.

Features

- APEO-free, no formaldehyde added
- Excellent adhesion
- Excellent weather resistance
- Excellent water whitening resistance
- Good flexibility
- Good DPUR

Properties	Value
Appearance	Milky white
Solids, %	45 ± 1
pH	7.0-9.0
MFFT, °C	23
Viscosity, (mPa·s, Brookfield, LV, 63#, 30rpm, 25°C)	500-2000

* Typical values, should not be considered as specification

Archsol 8331 emulsion – water whitening resistance



Early water whitening test:

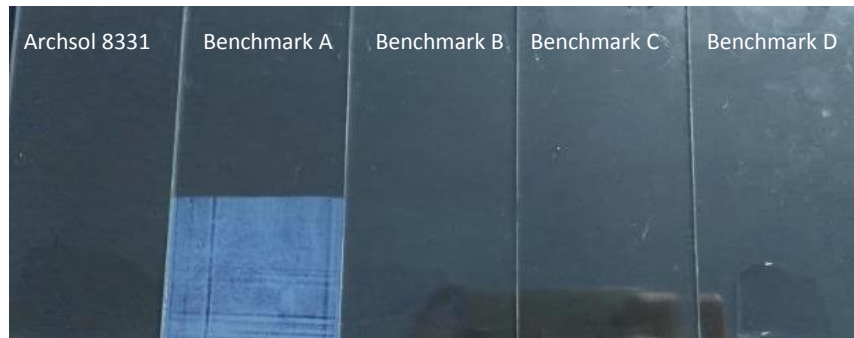
glass, 100um wet film @25°C, humidity 50%, 16h, immersed in water for different time



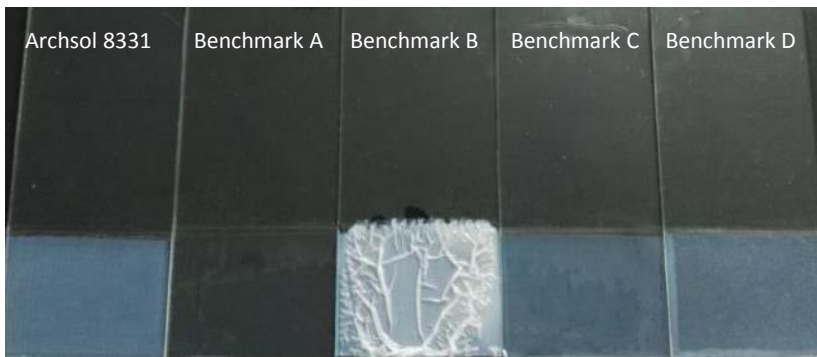
1d

Water whitening test after UVA:

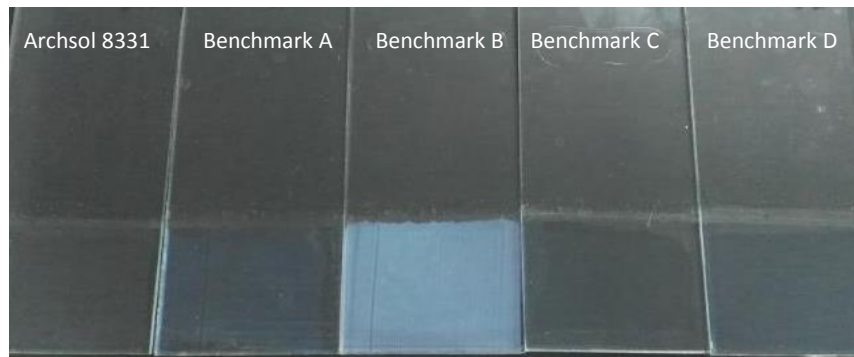
glass, 100um wet film @25°C, humidity 50%, 16h, UVA-340, 30W 168h, immersed in water for different time



1d



7d



7d

30

Archsol 8331 – Weathering resistance test

Film preparation: Archsol 8331+coalescent, 100um wet film on white tile

Curing condition: 25°C, humidity 50%, 16h, and then UVA-340, 30W 168h; Test ΔE



ΔE	Benchmark A	Benchmark B	Benchmark C	Archsol 8331	Benchmark D
	3.2	2.8	2.0	0.7	0.5

Formulated water proof coating – water whitening comparison



Early water whitening test:

glass, 100um wet film@25°C, humidity 50%, 16h, immersed in water for different time



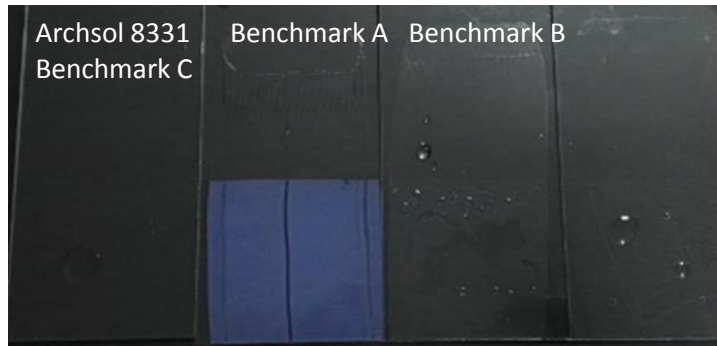
1d



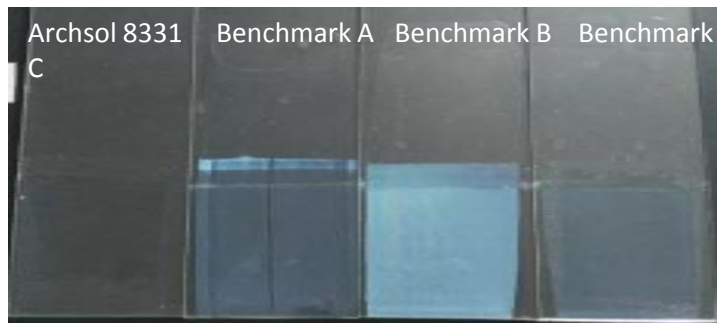
7d

Water whitening test after UVA:

glass, 100um wet film @25°C, humidity 50%, 16h, UVA-340, 30W 168h, immersed in water for different time

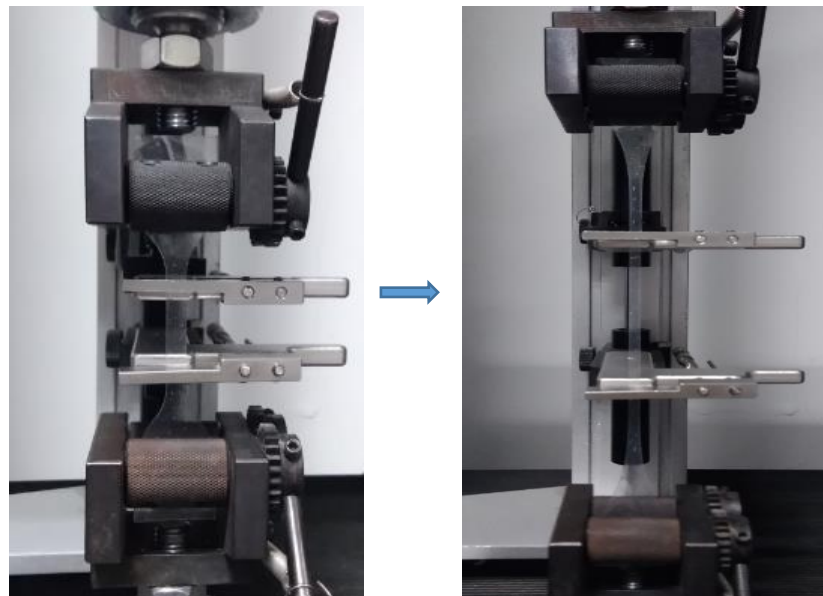


1d



7d

Items	Result
Elongation (%)	200
Tensile strength (MPa)	5.5
DPUR (%)	22.8
UVA-340, 30W168h, ΔE	0.7
Adhesion (glazed tile)*	0



Good flexibility, can cover tiny cracks

Adhesion test, result is from 0~5, 0 is the best, 5 is the worst

No.	Materials	Functions	Weight %	Suppliers
1	Water		100	
2	Archsol 8331	Emulsion	850	Wanhua
3	Texonal	Coalescent	43	Eastman
4	NXZ	Defoamer	2	Nopco
5	LXE	Biocide	1	Dow
6	DF-19	Antiseptic	1	Schulke
7	Vesmody U505	Thickener	3	Wanhua
Total			1000	

Waterproof product overview



Products	Type	REACH	Solids /%	Viscosity/cP	PH	Tg/°C	MFFT/°C	Applications
Archsol® 8316	PA	Y	55±1	500-1500	7.0-9.0	-10	<0	Polymer modified waterproof mortar
Products	Type	REACH	Solids /%	Viscosity/cP	pH	Tensile Strength/MPa	Elongation /%	Applications
Archsol® 8355	PU	?	50±1	10-1000	6.0-9.0	35	700	PUD waterproof coating
Archsol® 8407	PU	Y	50±1	20-1000	7.0-9.0	25	800	PUD waterproof coating
Archsol® 8408	PU	N	60±2	20-1500	7.0-9.0	20	700	PUD waterproof coating
Products	Type	REACH	Solids /%	Viscosity/cP	pH	Tg/°C	MFFT/°C	Applications
Archsol® 8331	PA	Y	45±1	500-2000	7.0-9.0	32	23	Clear waterproof membrane



创新成就卓越 INNOVATION CREATES EXCELLENCE

