

Floor coatings Beyond Durability



Welcome to our webinar

- Your microphones are automatically muted for the duration of the webinar
- Please ask any questions in the chat panel and these will be answered in the Q&A session at the end of the webinar
- You will receive a copy of the webinar after the webinar has finished

About the Speaker

Mr Tushar Trivedi



Mr. Tushar Trivedi works as International Sales and Applications Manager for Incorez Ltd.

In addition to international sales, he also manages and leads activities in areas of formulation development for new and existing products and provides technical support to customers on different applications.

Tushar received his Master of Science Degree in Paints and Coating from Sardar Patel University, India and have been involved in Research, Development and Application/Technical Service in the Paints and Coatings Industry for over 20 years.

Floor coatings Beyond Durability



FREE

Fast curing

Resistance

Easy to apply

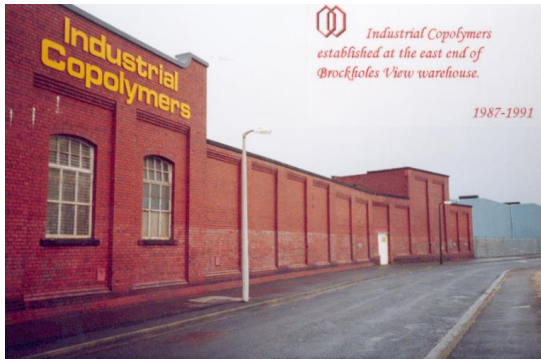
Environmentally friendly

Agenda

- Introduction
- Company briefing
- What makes a durable water-based floor coating?
- What is an applicator looking for in a water-based floor coating?
- How to meet these requirements
- Summary
- Q&A

Company Briefing

Company overview



Started 1986



2009 rebranded as Incorez

2010 acquired by Sika



2023

Our products

Oxazolidines

The Incozol[®] range

Moisture triggered, high performance additives for improving the durability of polyurethane coatings

Aldimines

The Aldirez[®] range

Moisture activated, accelerators for polyurethane sealants and primers

Waterbased Polyurethane Dispersions

The Dispurez[®] range

High performing PUDs designed to offer the balance between durability and sustainability

Waterborne Epoxy Curing Agents

The Amirez[®] range

Environmentally friendly epoxy curing agents ideally suited to the formulation of robust epoxy floor coatings

Sustainability Approach

More Value Less Impact



Members of...



We are committed to conducting 120 new EcoVadis assessments in 2023 and have been awarded a gold award for the level of commitment we have shown to this sustainability initiative.

The Amirez® Range

Amirez 148/010	Amirez 148/024	Amirez 148/055	Amirez 148/270
<p>Waterborne reactive polyamine adduct with long pot life. Complete compatibility with cement and calcium salts. Particularly well suited for high temperature climates. Low colour, low viscosity and high solids. Zero VOC and good freeze/thaw stability.</p>	<p>Waterborne reactive polyamine adduct with fast cure. Excellent gloss retention and chemical high solids.</p>	<p>APEO, formaldehyde and solvent free. Excellent hardness development. Compatible with all resin types. Low colour and low odour. Able to produce excellent gloss coatings. Fast cure with excellent gloss retention. Excellent water resistance. Excellent pigment stability. No blushing at low temperatures and high humidity.</p>	<p>A water-soluble polyamine curing agent for liquid epoxy resins. It is specifically designed for use in high build systems of 1-3mm film thickness, particularly for self -levelling systems. This curing agent provides excellent chemical resistance and adhesion to concrete, good abrasion resistance and low volume shrinkage.</p>
<p>Typical Applications</p> <ul style="list-style-type: none">• Epoxy cement mortars• Concrete primers• Primer for green concrete	<p>Typical Applications</p> <ul style="list-style-type: none">• Floor and wall paints• Concrete primers at low temperatures• Coatings for green concrete• Hygiene coatings	<p>Typical Applications</p> <ul style="list-style-type: none">• Top coats and intermediate coats• Floor paints• Wall paints• Concrete primers	<p>Typical Applications</p> <ul style="list-style-type: none">• High build coatings such as self levelling coatings and screeds

What makes a durable floor coating?

Durable floor coating



W/B epoxy topcoat –
Amirez 148/055



W/B epoxy high-build coating
Amirez 148/270



Waterbased epoxy primers
Amirez 148/055



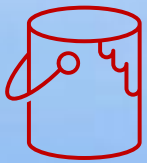
What is an applicator looking for in a waterbased coating?



- Easy to apply



- Fast cure/early walk on time



- Reasonable pot life



- Water and chemical resistance



- Abrasion resistance



Amirez[®] 148/055

Its technical excellence
shines through

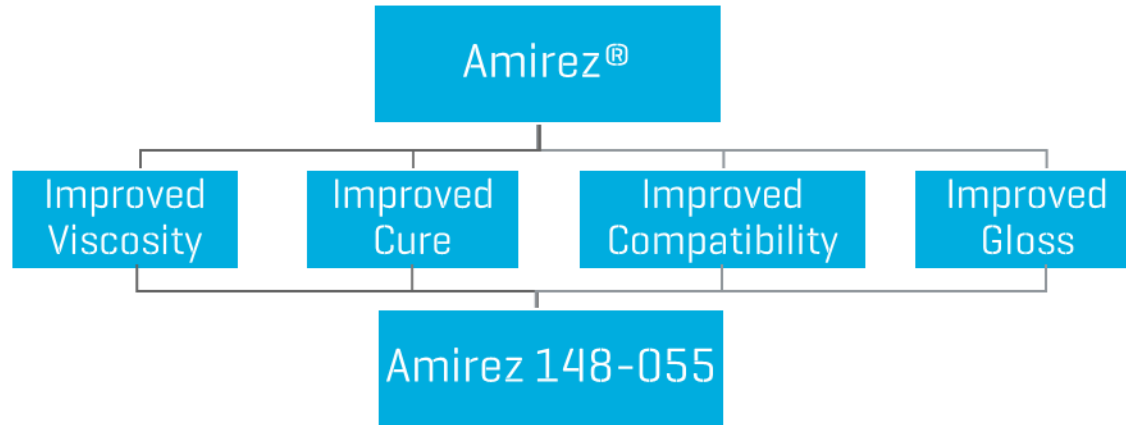
Amirez 148/055



Amirez® 148/055, the perfect cure for formulation challenges. Even better when you discover it's been developed to address high gloss with fast cure, no blushing and water resistance.

It creates floor coatings with unrivalled performance characteristics, such as excellent hardness, superb water and chemical resistance.

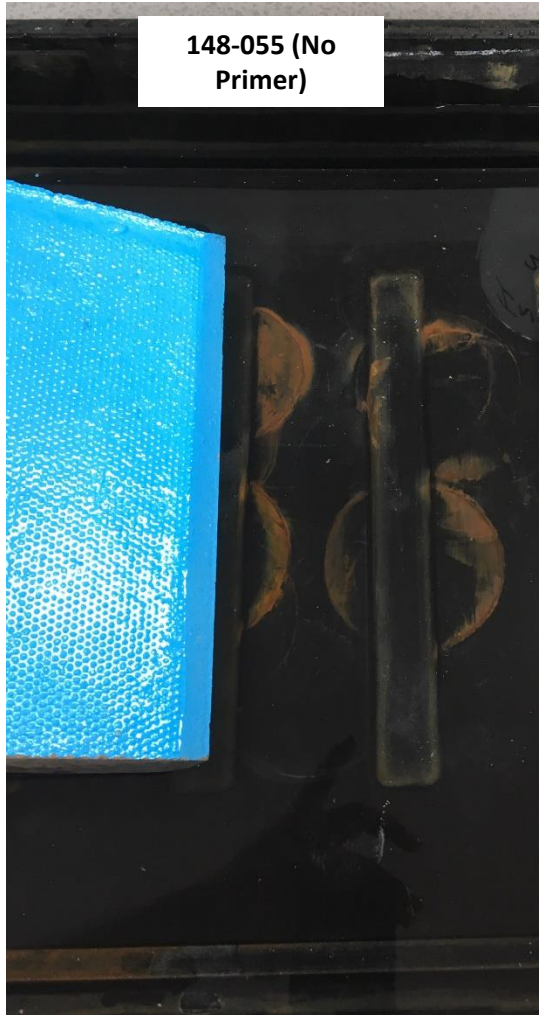
Features	Benefits
<ul style="list-style-type: none">▪ Rapid hardness development- fast cure	<ul style="list-style-type: none">▪ Shorter walk on time- quicker return to service
<ul style="list-style-type: none">▪ A water soluble polyamine with good working pot life	<ul style="list-style-type: none">▪ Ensures applicators have sufficient working time to install finished product
<ul style="list-style-type: none">▪ Compatibility with all epoxy resin types	<ul style="list-style-type: none">▪ Ability to formulate high performance, cost effective, high build coatings
<ul style="list-style-type: none">▪ Zero VOC	<ul style="list-style-type: none">▪ Safer for applications
<ul style="list-style-type: none">▪ Excellent water vapour permeability	<ul style="list-style-type: none">▪ Improves adhesion and reduces potential of osmotic blistering



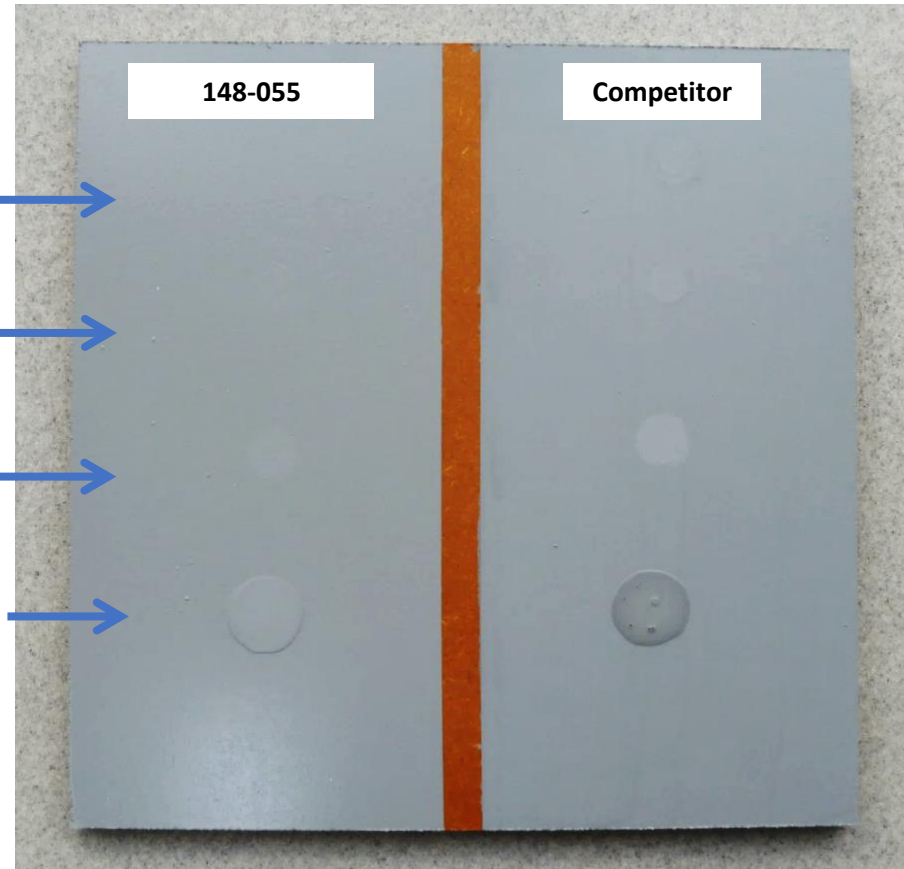
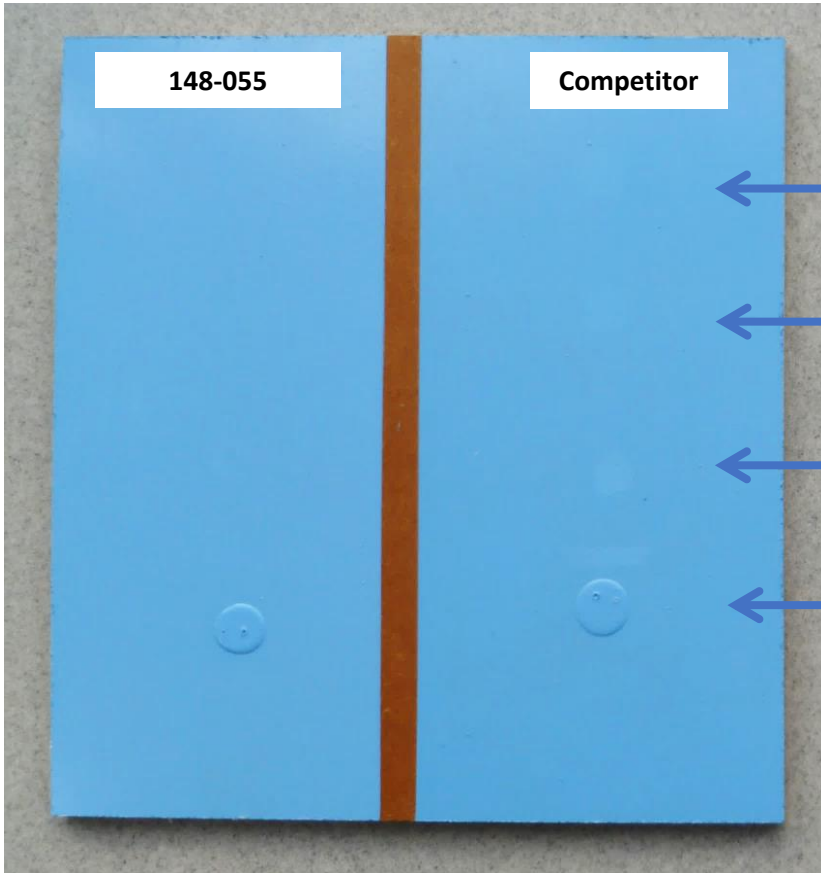
- ✓ Hardener viscosity
- ✓ Pigment wetting
- ✓ Water resistance
- ✓ Blushing
- ✓ Compatibility

- ✓ Pot life
- ✓ Cure speed
- ✓ Low temperature cure
- ✓ Gloss
- ✓ Hardness

Amirez® 148-055 : Water Resistance



Amirez® 148-055 : Pigment Wetting



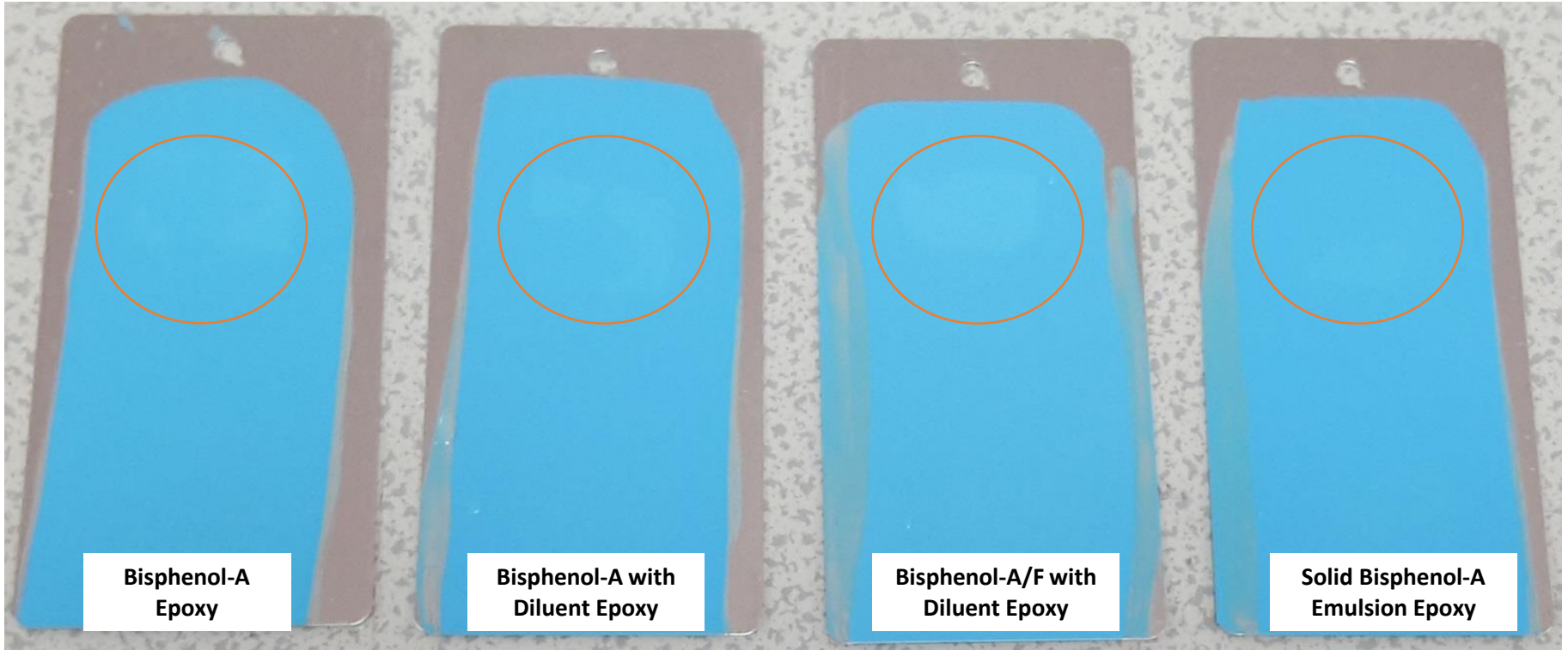
Initial
rub out

10 min
rub out

20 min
rub out

20 min
pour

Amirez® 148-055 : Blushing

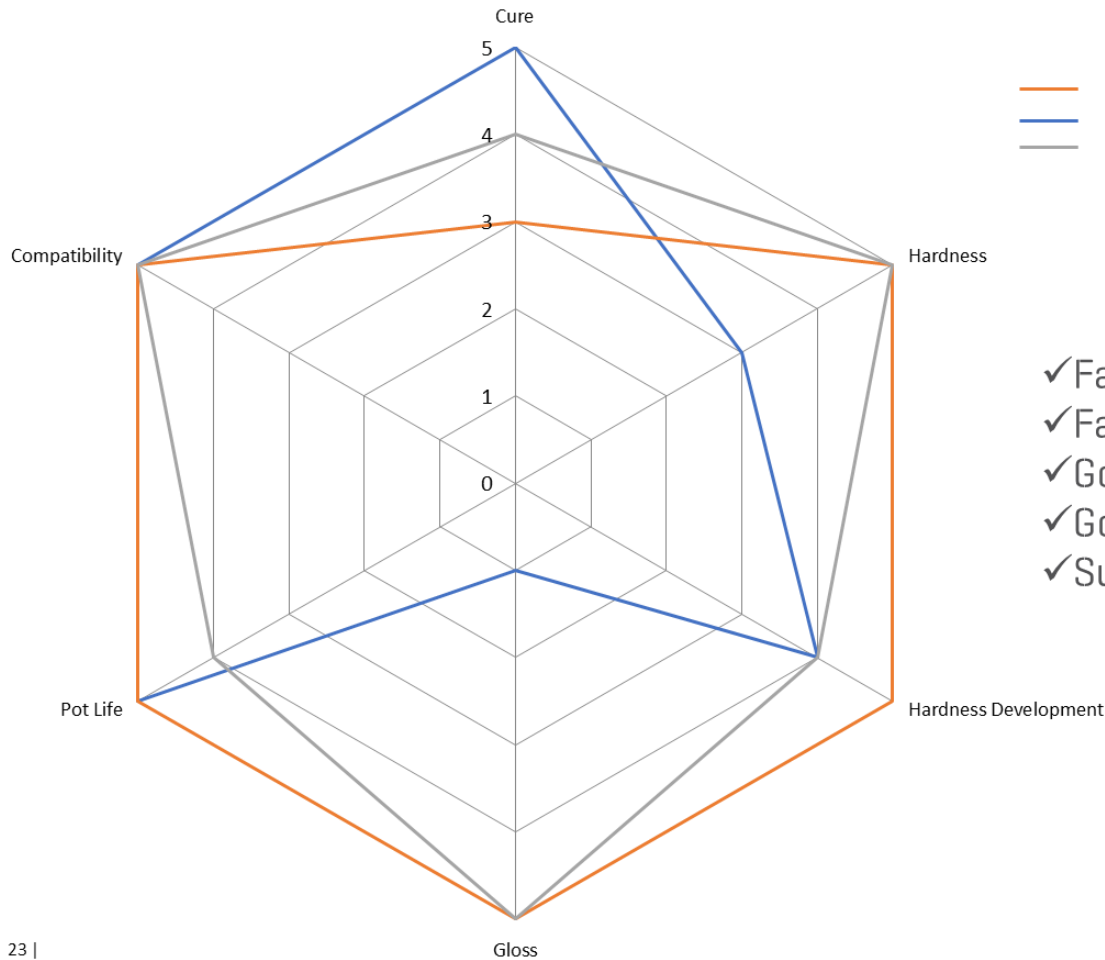


Amirez® 148-055 measured properties:

- Compatibility
- Pot life
- Cure speed
- Hardness
- Hardness development
- Gloss

Amirez® 148-055

With Bisphenol A Epoxy Resin [Epikote 828]

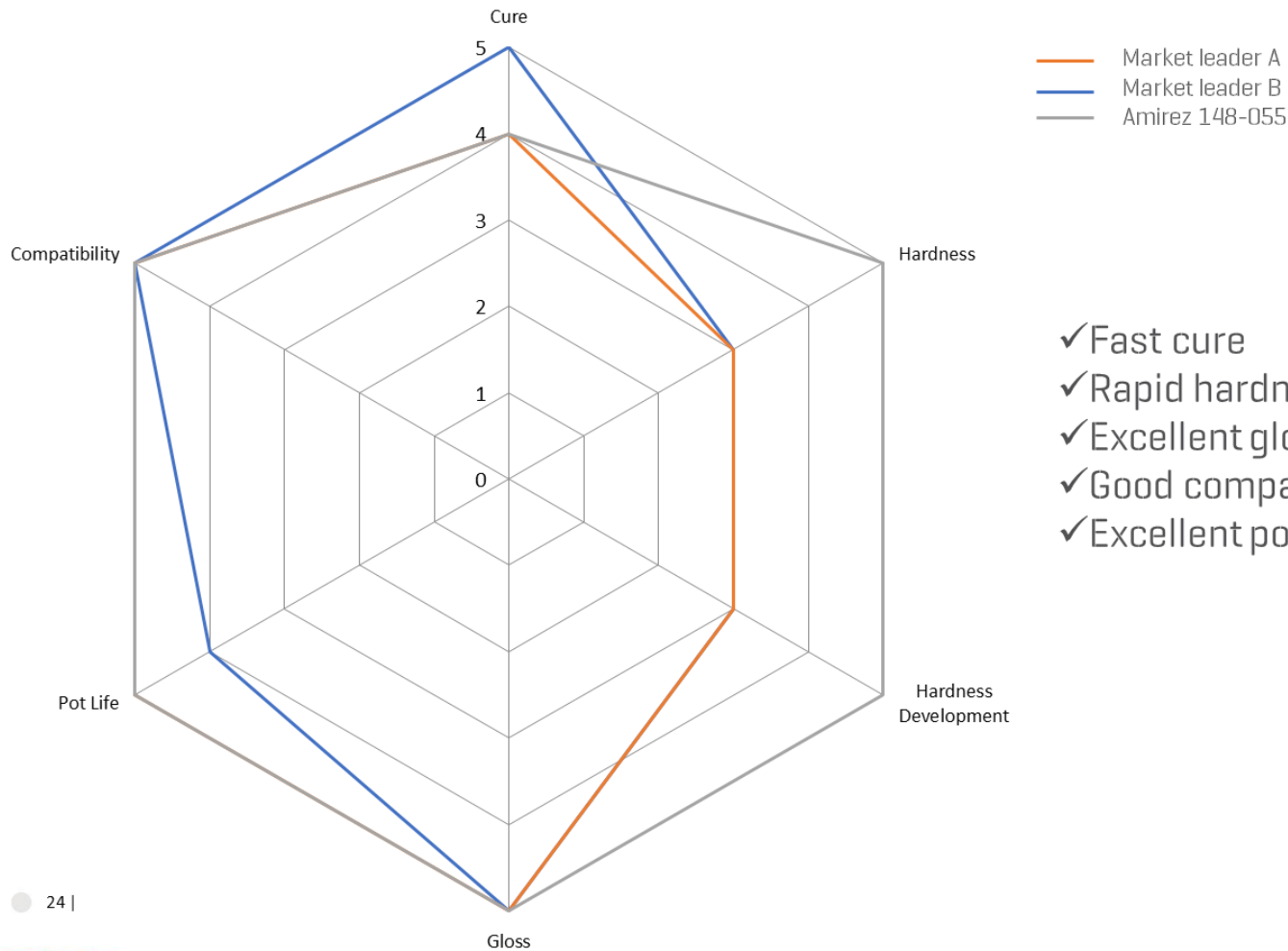


— Market leader A
— Market leader B
— Amirez 148-055

- ✓ Fast cure
- ✓ Fast hardness development
- ✓ Good gloss
- ✓ Good compatibility
- ✓ Sufficient pot life

Amirez® 148-055

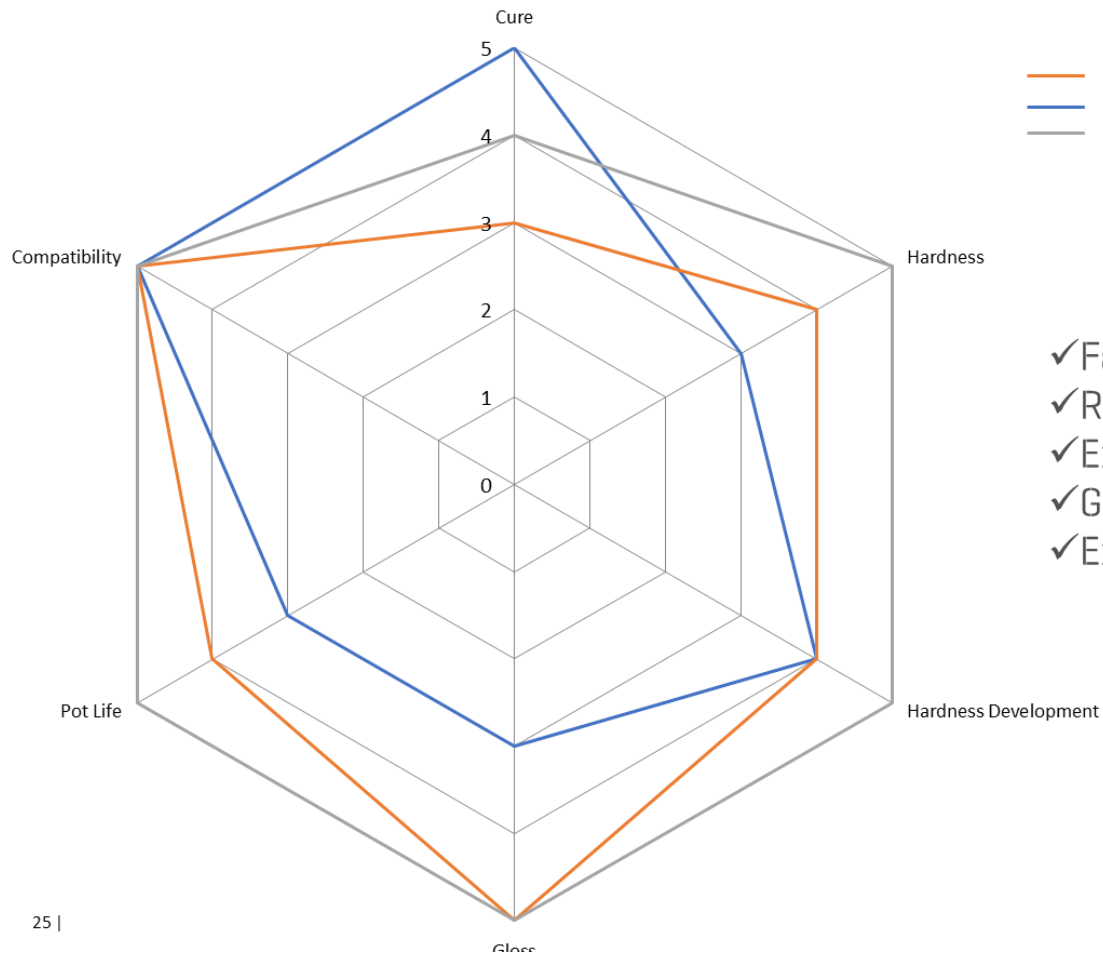
With Bisphenol A Epoxy Resin With Diluent (DER 324)



- ✓ Fast cure
- ✓ Rapid hardness development
- ✓ Excellent gloss
- ✓ Good compatibility
- ✓ Excellent pot life

Amirez® 148-055

With Bisphenol A/F Epoxy Resin With Diluent [Araldite GY783]

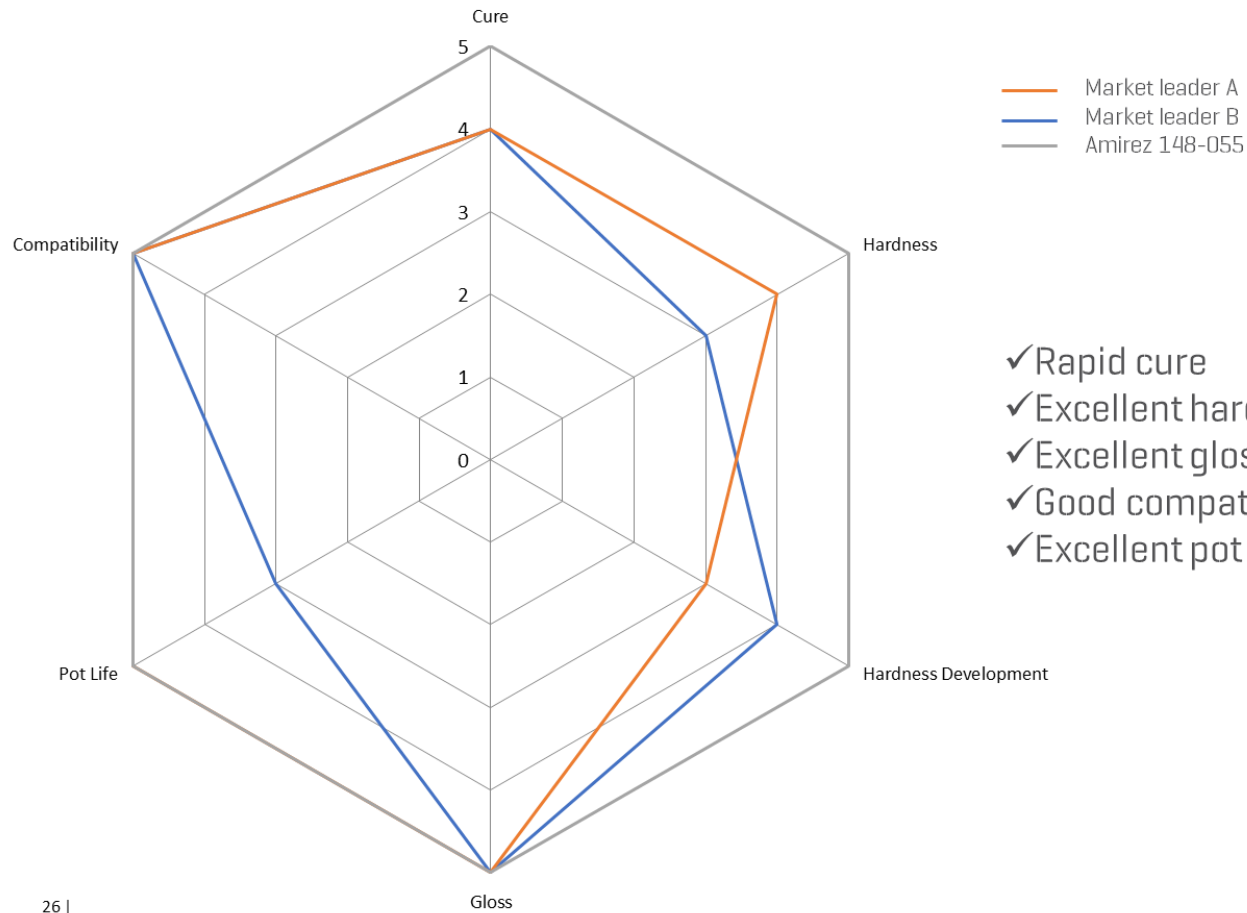


— Market leader A
— Market leader B
— Amirez 148-055

- ✓ Fast cure
- ✓ Rapid hardness development
- ✓ Excellent gloss
- ✓ Good compatibility
- ✓ Excellent pot life

Amirez® 148-055

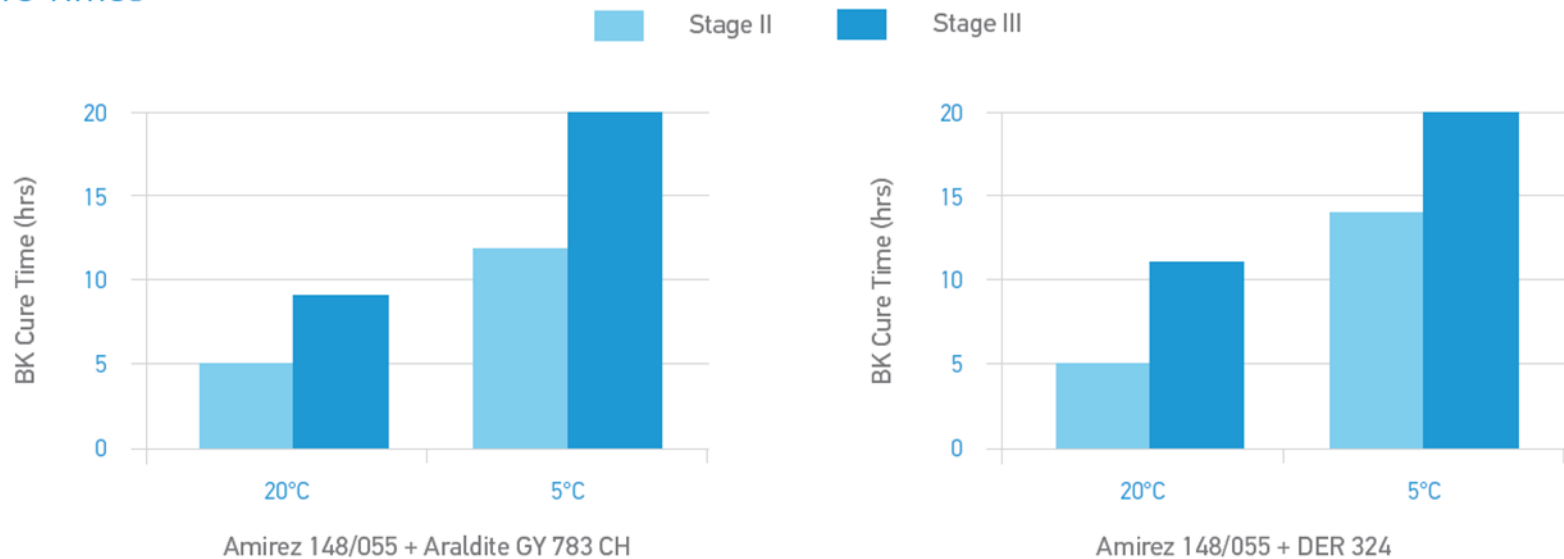
With Solid Bisphenol A Epoxy Resin Emulsion (Beckopox Ep384w)



- ✓ Rapid cure
- ✓ Excellent hardness development
- ✓ Excellent gloss
- ✓ Good compatibility
- ✓ Excellent pot life

Amirez® 148-055 fast curing

Cure Times



Faster curing can be achieved using solid epoxy resin such as BECKOPOX™ EP 2384w/57WA.

Amirez 148-055

Formulation Guides

2K Waterborne Concrete Primer

Part A	Material	Supplier	Parts by Weight
1. Polyamine adduct	Amirez 148/055	Incorez	32.90
2. Diluent	Water	Local	7.00
3. Defoamer	BYK 1711	BYK	0.50
4. Substrate Wetting Agent	Tego twin 4200	Evonik	0.30
5. Diluent	Water	Local	34.30

Part B	Material	Supplier	Parts by Weight
Epoxy Resin	Araldite GY 783 CH	Huntsman	25.00
Total			100.00

Properties

% solids w/w	43.1
VOC	0
PHR	132
Potlife	2 hours
BK dry - surface	4 hours
BK dry - through	8 hours
Gloss (60°C) - 7 day	154
Persoz hardness - 1 day	52
Persoz hardness - 7 day	305

2K Waterborne FloorPaint

Glossy Light Grey

Part A	Material	Supplier	Parts by Weight
1. Polyamine Adduct	Amirez 148/055	Incorez	26.30
2. Diluent	Water	Local	7.00
3. Defoamer	Byk 1711	BYK	0.40
4. Wetting & Dispersing Agent	Disperbyk 180	BYK	0.25
5. Pigment	Tiona 595	Cristal Global	12.00
6. Filler	Snowcal 30	OMYA	12.63
7. Black Pigment Paste	Colanyl Black N131	Clariant/BASF	0.20
8. Substrate Wetting Agent	BYK 349	BYK	0.25
9. Diluent	Water	Local	20.97
			80.00

Part B	Material	Supplier	Parts by Weight
Epoxy Resin	Araldite GY 783 CH	Huntsman	20.00
Total			100.00

Properties

% Solids (w/w)	60.30
% Solids (v/v)	47.10
PVC (%)	12.50
VOC (g/L)	0
PHR	132
Potlife @ 20°C (hours)	2
BK Surface dry time (hours)	4
BK Through dry time (hours)	8
Gloss (60°) – 7 day	90
Hardness (Persoz)	
1 Day	70
7 Day	260

Amirez[®] 148/270

Taking high build coatings to another level



Amirez 148/270



Amirez® 148/270 has been specifically designed for use in high build systems of 1-3mm film thickness. This water-soluble polyamine is the perfect partner for liquid epoxy resins allowing formulators to develop exceptional self levelling coatings and screeds. It offers

- Excellent chemical and abrasion resistance
- Excellent adhesion to concrete
- Low volume shrinkage

Features	Benefits
<ul style="list-style-type: none">▪ Low viscosity and high solids	<ul style="list-style-type: none">▪ Allows ease of formulation and effortless application of finished product
<ul style="list-style-type: none">▪ A water soluble polyamine with good working pot life	<ul style="list-style-type: none">▪ Ensures applicators have sufficient working time to install finished product
<ul style="list-style-type: none">▪ Compatibility with liquid epoxy resins	<ul style="list-style-type: none">▪ Ability to formulate high performance, cost effective, high build coatings
<ul style="list-style-type: none">▪ Zero VOC	<ul style="list-style-type: none">▪ Safer for applications

Guide Formulation Amirez 148/270

2K Waterborne Self-levelling Floor Coating

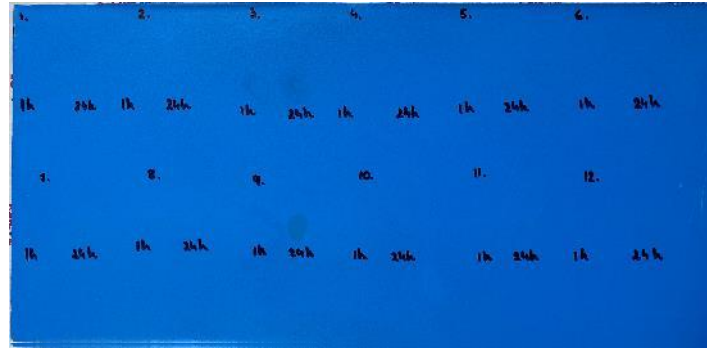
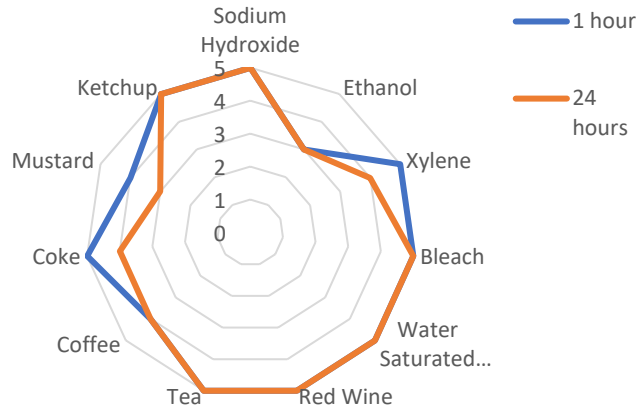
A-Component			
1. Curing Agent	Amirez 148/270	Incorez	10.00
2. Defoamer	BYK 1615	BYK	0.80
3. Diluent	Water	Local	3.00
4. Pigment	Tiona 595	Cristal Global	3.80
5. Filler	Barytes EWO	Sachtleben-Minerals	13.00
6. Filler	Quartz Powder M6	Sibelco	27.00
7. Filler	Quartz Sand (0.1- 0.3) mm	Sibelco	34.90
8. Diluent	Water	Local	7.30
9. Thixotropic Agent	Deuteron VT819 (2% acq)	Deuteron	0.20
			100.00

B-Component			
10. Epoxy Resin	Epikote 828LVEL	Hexion	10.00
Total			110.00

Amirez 148/270 Test Results

Chemical resistance test

Chemical and Stain Resistance



Scoring Key	0	film removal
	1	heavy cracking
	2	light cracking
	3	heavy staining
	4	light staining
5	no change	

Test Material	Time/Con ditions @RT	Sodium Hydroxide (5% - 10%) (1)	Ethanol (2)	Xylene (3)	Bleach (4)	Water saturated sponge (5)	Red Wine (6)	Tea (7)	Coffee (8)	Coke (9)	Mustard (10)	Ketchup (11)	Total
Self- Levelling Coating	1 hour	5	3	5	5	5	5	5	4	5	4	5	51
	24 hour	5	3	4	5	5	5	5	4	4	3	5	48

Amirez 148/270 Test Results

Blushing Test

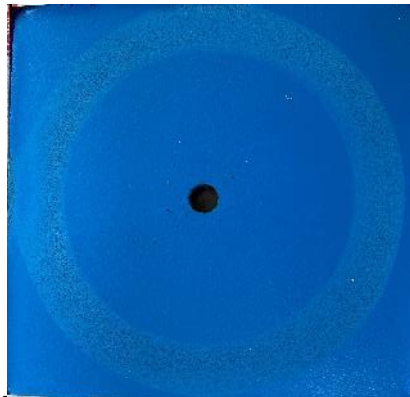


Blushing Test		
Test Material	Time/ Conditions @RT	Result
Self- Levelling Coating	1 day	Medium
	2 days	Medium/Slight
	3 days	Slight
	6 days	No change
	7 days	No change

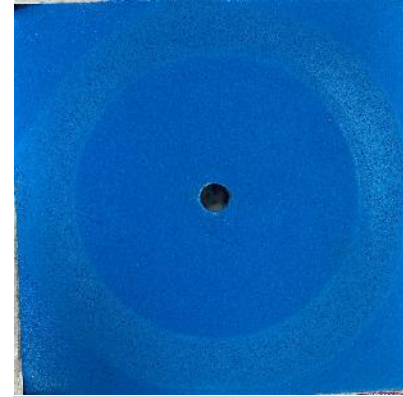
- Amine blushing is a feature associated with epoxy coatings. When no blushing occurs it is proof that the product is fully cured which results in excellent water and chemical resistance

Amirez 148/270 Test Results

Abrasion Resistance Test



**Abrasion Resistance
Test after 1 day @ RT**



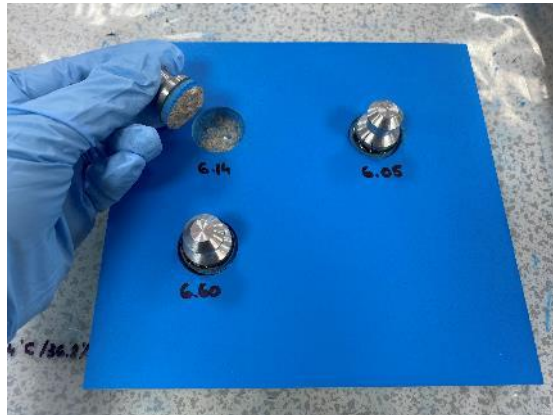
**Abrasion Resistance
Test after 7 days @ RT**

Very low mg loss even after 1 day. Much lower than competitive product

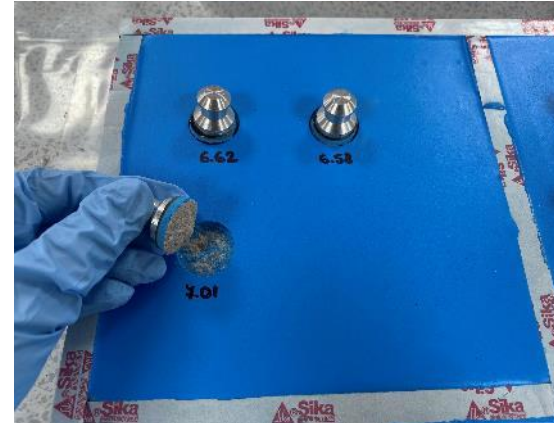
Taber Abrasion Resistance				
Test	Method/Standard	Time Period/Conditions @RT	Revolutions	Average
Abrasion Resistance Self - levelling (CS-17) (mg/1000 cycles)	BS EN ISO 7784-2	1 day @RT	initial	129.385
			500 rev	129.303
			1000 rev	129.217
		% loss		0.13%
		mg loss		168
		7 day @RT	initial	133.075
			500 rev	136.273
			1000 rev	132.843
% loss			0.17%	
mg loss		232		
Abrasion Resistance Competitor Product (CS-17)	BS EN ISO 7784-2	mg loss		300

Amirez 148/270 Test Results

Bond Strength Test



Pull-off Adhesion Test after water immersion



Pull-off Adhesion Test on dry concrete

Bond Strength Test

Test	Method/Standard	Time Period/Conditions @RT		Self -Levelling Coating	Pass/Fail (Cohesive Failure to Concrete)	Competitor Product
Pull-off Adhesion (MPa)	BS EN 1542	Dry Concrete with Primer	7 days	5.70	Pass	4.50
		Dry Concrete with No Primer	7 days	6.74	Pass	
		Wet Concrete with Primer	7 days	6.26	Pass	4.50

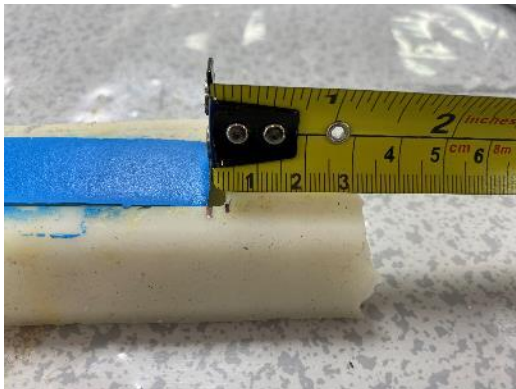
Amirez 148/270 Test Results

Shrinkage Test



Shrinkage Test Bar

Less than 1% shrinkage is considered very low



Amirez 148/270 Shrinkage Test

Shrinkage Test						
Test	Time Period/ Conditions @RT	Self -Levelling Coating				
		Initial length (cm)	Length after 7 days (cm)	Length after 28 days (cm)	Difference (cm)	Shrinkage (%)
Shrinkage Bar Test	<i>Tested after 7 days and 28 days @ RT</i>	43.4	43.1	43.1	0.3	0.69%

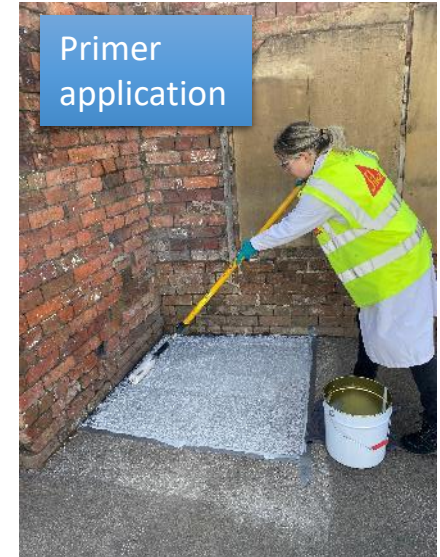
Amirez 148/270 Test Results

Summary of results

Property	Unit	Self-Levelling Coating	Competitor Product
Surface Appearance		Satin/Matt	Satin/Matt
1 day Hardness @20°C 50% RH	Shore D	55	50
7 day Hardness @20°C 50% RH	Shore D	66	70
1 day Hardness @10°C	Shore D	55	50
Bond Strength			
- to Dry Concrete	MPa	6.7	4.5
- to Damp/Wet Concrete	MPa	6.3	4.5
Abrasion Resistance	mg loss	168	300
Working Time	min	30 - 45	~30
Volume Shrinkage	%	< 1	< 1
VOC	mg/m ³	0	0

Amirez 148/270 Test Results

Outdoor Trial



Amirez 148/270 Test Results

Outdoor Trial – Primer based on Amirez 148/055



Amirez 148/270 Test Results

Outdoor Trial



Amirez 148/270 Test Results

Outdoor Trial



Amirez 148/270 in 2K self-levelling coating

Features

- Excellent chemical and water resistance
- Good abrasion resistance
- Superior adhesion to concrete
- Low volume shrinkage

Benefits

- Superior high build coatings, without the need for a topcoat
- Suitable for high traffic areas
- High performance high build coatings that adhere quickly to concrete and
- Less than 1% shrinkage ensures no delamination of the finished coating and no shrinkage away from walls and details

Summary



For primers and topcoats



For high build coatings

Amirez® 148/055

Amirez® 148/270

Benefits for formulator



- Excellent compatibility with all Epoxy resin types
- Excellent Water, Chemical & Abrasion Resistance
- Excellent Adhesion and inter-coat adhesion



- Excellent 1 day hardness
- Excellent adhesion to concrete = no primer needed
- Low volume shrinkage- less than 1%

Benefits for applicator



- Fast dry
- High gloss
- Excellent Water, Chemical & Abrasion Resistance
- Workable potlife



- Fast dry
- Low volume shrinkage- less than 1%
- Ealy walk on time
- Workable potlife

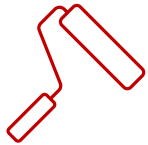
- Expert technical advice including guide formulations
- Global, consistent supply
- Responsible business with a comprehensive sustainability strategy
- High performance products



- **Fast cure**



- **Resistance**



- **Easy to apply**



- **Environmentally friendly**

FREE

Formulated samples are available to start your next flooring project

Question and Answer