atal cyf
Structural Waterproofing Solutions

Unit 27, Tafarnaubach Industrial Estate,
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ATAL 107F TECHNICAL DATASHEET

INTRODUCTION

Atal 107F is a two-component, cementitious, polymer-rich coating for the waterproofing and protection of concrete and masonry. Capable of withstanding heads of water pressure up to 10 bar of positive pressure and up to 1.5 bar to the negative side of the structure, Atal 107F is ideally suited to the waterproofing of reservoirs, tunnels, water tanks, earth-retaining structures and covered or buried decks, and is especially capable where the structure has both masonry and concrete elements where differential movement is expected.

BDA Agrément
BAB-18-026-P-A-UK

When mixed, 107F is thixotropic to enable ease of application by brush or airless spray, providing an even finish with no sagging and excellent adhesion to prepared concrete and masonry substrates, even in vertical and overhead situations. Atal 107F is reinforced over static joints and at details and changes of direction with Atal Aso Joint Tape 2000-S.

Atal 107F hydrates to form a durable, highly alkaline, and permanently elastomeric coating which not only protects the concrete or other substrates from water penetration, but also accommodates slight movement in cracks and at correctly specified movement joints. Atal 107F is also supported by BDA Agrément® BAB 18-026-P-A-UK and is accepted by the NHBC as a suitable waterproofing system for Type A Waterproofing to Grades 1a, 1b, 2 and 3 - BS 8102:2022 and to covered decks.

PACKAGING

A+B Components already measured, in two containers

COVERAGE

KEY BENEFITS

- Pre-packaged materials easily mixed on site.
- Tough, flexible coating which maintains its elastomeric properties even when immersed.
- Excellent adhesion to sound prepared concrete and masonry substrates, as well as steel.
- Suitable for positive and negative waterproofing of earth-retaining structures as well as covered decks
- Dense matrix offers low permeability to water.
- A 2 mm coat provides the equivalent to 135 mm of good quality concrete cover.
- Can be applied to damp substrates in temperatures down to +5°C
- Water-based product. Non-toxic when cured.

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TECHNICAL DATA

Features	Result	Units
Form – Two components	Part A liquid + Part B powder	
Colour	Grey	
Density/Specific gravity	1.6	
Pack size	30	kg
Yield per kg	0.63	Litres
Shelf life	24	Months
Pot life @ 20ºC & RH of 60%	45	Minutes
Finishing time	Within 10 minutes of placing	
Application rate – in one or two coats	3.2	kg/m²
Substrate application temperature	+5 to +30	°C
Service temperature	-15 to +80	°C
Odour	Low - Characterised as polymeric	
VOC content - Part A only (none when cured)	1.76	g/L

Curing*	5°C	10°C	15°C	20°C	25°C	Units
Ready for next coat	8	7	6	5	3	Hours
To not be adulterated by rain	5	4	3	2.5	2	Hours
Ready for temporary traffic/protection boards	72	72	72	48	48	Hours
Ready for flood/hosepipe test	7	7	7	7	7	Days
Fully cured	28	28	28	28	28	Days

Cured Performance	Result	Units	Test Method
Colour	Grey		
Membrane thickness in one or two coats	2.0	mm	
Adhesion to concrete	0.89	MPa	BS EN 1542
Tensile strength - Ambient**	0.5	MPa	BS 6319-7:1994
Tensile strength - Immersed**	0.4	MPa	BS 6319-7:1994
Elongation at break - Ambient**	120 - 130	%	Manufacturer test
Elongation at break - Immersed**	70 - 80	%	Manufacturer test
Static crack bridging capability (class A5)	>2.5	mm	BS EN 1062-7 - Method A
Dynamic crack bridging capability	1000 cycles	0.2 -0.5 mm	BS EN 1062-7 - Method B
Compressive strength – 28 days	8 to 10	MPa	BS 4551
Hardness	84.0	Shore A	BS EN ISO 868:2003
Flexural Strength	3.5 – 4.0	MPa	EN196-1
Water Permeability Coefficient	5.37×10^{-16}	m/sec	DIN 1048 Part 1
Water vapour diffusion resistance – S_d value	1.55	m	BS EN ISO 7783-2
Water vapour diffusion resistance – μ value	775	μ	Calculation from S_d value
Water vapour diffusion resistance	7.75	MNs/g	Calculation from S_d value
Water resistance – Positive side	10.0	Bar	DIN 1048
Water resistance – Negative side	1.50	Bar	DIN 1048
Liquid Water Transmission Rate (Capillary Absorption and Permeability to Liquid water)	$w = 0.0086\ kg.m^{-2}.h^{-0.5}$		EN1062-3
Permeability to CO^2	57****	m	EN 1062-6
Thermal compatibility	0.88*****	MPa	EN 13687-1
Water Permeability Coefficient Equivalent Concrete Thickness	5.37 x 10-16m/sec 2mm = 2270mm of concrete		DIN 1048
Reaction to fire classification - Euroclass	B - s1, d0		BS EN 13501-1
UV Resistance - Stable but will discolour	50	Years	UNI EN ISO 11507:2007***
Root Resistance	Barrier to Root Penetration (Lupin Test)		DD CENT/TS 14416
pH	12		

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The previous data, even if carried out according to regulated tests are indicative and they may change when specific site conditions vary. *Figures are influenced by humidity also and so are indicative. **2mm film cured for 28 days. ***UNI EN ISO 11507:2007 is an accelerated ageing test. The result of 1000 hours translates to 50-years. ****2mm equivalent to 135mm of concrete. ***** Crack bridging flexible systems without trafficking

TYPICAL APPLICATIONS

Waterproofing of:

- Podium decks, flat roofs, terraces and balconies
- Water-retaining structures such as water tanks and reservoirs
- Earth-retaining foundation walls to both the positive and negative side
- Internal concrete surfaces of walls and rafts or slabs to earth-retained structures such as habitable basements, car parks, plant rooms and lift-pits

ACCREDITATIONS & APPROVALS

Atal 107F is independently tested by BSI to confirm performance data to the requirements of EN 1504-2:2004 in accordance with the EU Construction Products Regulations. Please see CE Label on page 9 for further information. Atal 107F is supported by KIWA BDA Agrément and is accepted by the NHBC as a suitable waterproofing system for Type A Waterproofing to Grades 1a, 1b, 2 and 3 - BS 8102:2022, and for the waterproofing of covered decks, both as standalone product or in conjunction with other approved products that form the overall waterproofing specification.

SUITABLE SUBSTRATES

Correctly prepared substrates of:

- Concrete of at least 20kN
- Steel*
- Structural masonry/mortar
- Screed

SUITABLE SURFACES

Waterproofing of:

- Walls - Positive pressure and Negative pressure
- Slab/raft - Negative pressure
- Soffit - Negative pressure
- Deck - Positive pressure

METHOD OF APPLICATION

- Squeegee
- Roller
- Airless Spray
- Pin Leveller
- Brush
- Trowel

SPECIALIST TOOLS REQUIRED

- Spiked shoes and spiked roller to ensure captured air is removed and to improve the surface finish.
- To spray the product, an airless machine is required.

SPECIFICATION

Atal UK provide a project specific NBS style specification on request.

TRAINING & COMPETENCY OF THE USER

Atal 107F should only be used by those with an understanding of the requirement to waterproof retained structures and the knowledge and training to use the product as part of a coordinated approach to the waterproofing of the structure, which in many cases will require further waterproofing products so as to achieve the required habitable grade as defined by BS 8102:2022. It is recommended that Atal 107F and its ancillary products be installed by contractors trained by Atal UK in the correct use of the product.

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PROTECTION OF THE MEMBRANE

The membrane is not wear resistant and requires protection from wear and weathering.

Protection methods include:

- Internal floors - Ceramic tiling adhered to a de-coupling membrane
- Internal Floors - Screed or other floor coverings
- External walls - Atal Flo Board 4e, Atal Danopren Insulation Or Atal Protection Board

LIFE EXPECTANCY

When specified, installed and protected in accordance with the Data Sheet, fully and permanently isolated from UV light and physical damage or wearing, and only to those substrates confirmed within, Atal 107F has a service life that can be equal to the design life of the structure.

Atal 107F is guaranteed to resist weathering for up to 10-years. The membrane is not UV colour stable and will slightly fade in colour over time, and it may take a few months for the colour to be consistent. Over time discolouration due to weathering may take place, but the membrane will be serviceable.

The membrane is not hard wearing and should be protected against wear.

PACKAGING

The product consists of two parts, A and B, both of which are measured and ready to be mixed:

- Part A (Container of liquid) 10 kg
- Part B (Bag of powder) 20 kg

APPLICATION RATE

The membrane is applied to a total thickness of 2.0 mm, which requires an application rate of 3.2 kg/m2.

Walls and soffits

Application is by two coats, each of 1.6 kg/m2.

Horizontal surfaces

Application is by two coats, each of 1.6 kg/m2 or by a single coat of 3.2 kg/m2.

At a thickness of 2.0 mm, a 30kg composite pack covers a total surface area of 9.4m2.

ANCILLARY PRODUCTS

Atal Asodur GBM - Primer for concrete

Atal Aso Joint Tape 2000-S - Reinforcement Tape for static joints construction joints

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CONSTRUCTION

The construction should conform with current Building Regulations, British Standards and relevant Codes of Practice.

CONSTRUCTION - NEW CONCRETE

New concrete to earth retaining structures should be designed by a Structural Engineer to EN 1992 (Formerly BS 8110). A shuttered finish to vertical surfaces is suitable for Atal 107F.

Horizontal concrete surfaces should have a surface finish to at least Class of finish U3 and preferably to class U4 or U5 as documented in 'General Specification for Civil Engineering Works' section 14: 'Formwork and Finishes to Concrete', namely a 'Uniform, dense and smooth surface'. Float marks should be avoided as these will impact on the cost of correct surface preparation.

Atal 107F can be applied to new concrete providing that:

- The concrete is at least 20 N strong.
- The concrete can be prepared using conventional mechanical preparation methods to remove laitance to floors and release agents to walls.

CONSTRUCTION – MORTAR

Walls should be designed by a Structural Engineer to withstand the load of the retained earth as well as the expected water pressure as defined by BS 8102:2022. The mortar joints should be pointed flush to the surface of the wall.

SURFACE PREPARATION – GENERAL

Generally the surfaces to be waterproofed must be structurally stable, clean, dry and free from release agents, dust, laitance, oils, paints or other forms of contamination.

Substrate damage, deterioration, cracks, voids, and holes should be repaired and filled prior to installation of the waterproof membrane with Atal Asocrete M30 repair mortar. Deep or structural cracks should be inspected to confirm if they are live or dormant. Suitable repair by qualified personnel is recommended.

SURFACE PREPARATION - CONCRETE WALLS

Jet washing with minimum pressure of 2500 PSI should be used to remove release agents and surface contamination to concrete walls. Adding mild detergents to the jet wash water will improve effectiveness.

Fine surface cracks and blow-holes should be filled with sand/cement using a bag rubbing technique.

Tie-Bolt holes should be filled with Atal Fix T20

SURFACE PREPARATION - MORTAR WALLS

Joints should be flush pointed. If they are not, re-point or apply a smoothing coat of sand/cement render with Atal 908 LiquaBond mixed into the gauging water at 1:2, or Atal Asocrete M30

Porous block walls should be filled by bag-rubbing with sand/cement.

Existing walls of block or brick will require wall surface preparation such as grit blasting or scabbling to ensure all surface containments are removed and that a good 'key' is achieved.

Remove snots.

SURFACE PREPARATION - CONCRETE FLOORS

In all cases, concrete floors should be ground or sand blasted to remove laitance. Vacuum clean after.

If the concrete floor needs to be levelled, please speak to the Atal Technical Department who will advise on the correct levelling product.

Large holes or indentations should be filled Atal Asocrete M30.

SURFACE PREPARATION – METAL

Clean to remove surface contaminants and abrade to a slightly textured finish.

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JOINTS & CHANGES OF DIRECTION

Reinforce static joints with Atal Aso Joint 2000-S.

Over shrinkage joints, use 25mm wide masking tape to create delamination.

Please speak to our Technical Department for assistance on the correct specification to joints.

PRIMING

Walls and soffits - Prior to slurry tanking, porous substrates should be sealed with sand/cement using a bag rubbing technique.

Internal slabs and rafts - Porous substrates should be sealed with Atal 903-P.

External decks - Should be primed with Atal 903-P.

MIXING

Atal UK supply the full range of Collomix Mixing Equipment that includes Hand Mixers, Stirrers, Mixing Stands, Buckets, Transport Carts and the Mixer Clean mixing bucket. Atal 107F can be mixed with the DLX (preferred) and KR stirrers, matched to the Xo 1 or Xo 4 Hand Mixers which are suitable for quantities of up to 65 litres. For larger quantities the MKD dual action stirrer is matched to the Xo 55 duo Hand-Mixer.

- Shake Part A bottle thoroughly and pour into clean mixing vessel
- Add part B (powder) slowly whilst mixing slowly
- Mix for 5 minutes until smooth, entrapping as little air as possible
- Continuously scrape sides to prevent lumps forming and to ensure all of part A is mixed with all of part B
- Mix for a minimum of 5 minutes and use without delay

APPLICATION

The mixed slurry can be applied by Brush, Squeegee, Roller, Trowel or Pin Leveller. Ensure that air is not entrapped into the surface of horizontal applications by using a spiked roller as soon as the product is placed.

With two coat applications, the second coat can be applied when the first coat is still ‘green’ and slightly tacky and up to five days after the first coat has been applied. After five days, the first coat will need to be washed to remove dust.

SPRAYING SPECIFICATION

Atal 107F can be sprayed with an airless spray machine. For information on the machine and configuration, please contact our Technical Department.

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CURING

For curing/drying times please see Technical Data on page 2. Atal 107F is a cement-based product and so requires curing. Accelerated drying must be avoided.

If the conditions are hot, sunny and/or very windy the finished membrane must be protected from accelerated drying.

In floor and deck applications, coloured sands or grit can be cast liberally onto the surface to provide effective curing, whilst also creating an abrasion and slip-resistant finish.

Curing must commence within 10-15 minutes of the completed application of the coating.

POT LIFE & FURTHER USE

Atal 107F is a two-part product and a chemical curing reaction starts as soon as the two parts are mixed. Pot life is 45 minutes at 20ºC. Product must be used before it starts to go off/over thicken.

CLEANING

Thoroughly clean all tools and equipment with water immediately after use.

LIMITATIONS

- Do not apply prior to rain - please see information within the curing table on page 2
- Do not apply at temperatures lower than +5°C or higher than +30°C
- Always use the correct preparation and priming of the support substrate as directed above

COLOUR

Grey

STORAGE

Store in dry conditions at temperatures between +5°C and +25°C with containers fully sealed. Do not expose to freezing conditions.

If these conditions are maintained and the product packaging is unopened, then a shelf life of up to 24 months can be expected.

Please note: The sacks are splash proof and not waterproof. Please ensure that the product is moved to dry site storage as soon as it is delivered.

HEALTH & SAFETY

Use appropriate PPE for the environment the system is installed within. Use products only as stated within this Data Sheet and the MSDS.

CHEMICAL RESISTANCE

THE EFFECT OF VARIOUS CHEMICALS ON THE PROPERTIES OF ATAL 107F

2mm thick films of Atal 107F were cast and cured for 28 days at 20°C/65% RH before being cut into test pieces of 30 x 90mm. The test pieces were measured accurately and immersed in the solutions/chemicals of the table below at 20°C.

3 test samples were removed from each solution at 28 days and a further 3 were removed at 3 months. After removal the samples were measured and tested for tensile strength under elongation using a Lloyd Instruments Tensometer.

The performance of 107F in each test liquid / solution was evaluated and given a rating in each case which takes into account (i) surface condition and (ii) overall performance in the particular medium. This ranges from 0 to 10 where 0 represents total disintegration of the sample and 10 represents perfect surface condition and no decrease in performance relative to control samples which were cured at 20°C and 65% RH for the test period.

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RESULTS

See table below.

CONCLUSION

Although the overall chemical resistance of 107F is as good as normal concrete, for high demand applications 10mm render of Atal Asocrete M30 should be used.

TEST	1 MONTH IMMERSION				3 MONTHS IMMERSION			
Medium	Volume Change (%)	Tensile Strength (N/Mm^{23})	% Of Control Strength	Rating (/10)	Volume Change (%)	Tensile Strength (N/Mm^{23})	% Of Control Strength	Rating (/10)
(Air Cure)	-2.3	0.434	-	10	-1.6	0.695	-	10
Deionised Water	6.5	0.363	83.6	9	16	0.458	65.8	8
Synthetic Silage	13.0	0.193	44.5	5	46.4	0.056	8.0	1
Magnesium Sulphate Solution	33.8	0.305	70.2	7	40	0.236	33.9	3
Amimonium Nitrate Solution	18.2	0.150	34.6	4	16.1	0.095	13.7	2
Ferrous Sulphate Solution	33.6	0.461	106.2	10	79.4	0.397	57.1	5
Amimonium Sulphate Solution	73.6	0.088	20.2	2	76.7	0.049	7.1	1
Acetic Acid	46.0	0.056	12.9	2	9.1	0.066	9.5	2
Hydrochloric Acid	38.0	0.047	10.8	2	65.9	-	-	0 (Total Disintegration)
Sulphuric Acid	102.8	0.043	9.9	1	100.1	0.040	5.7	1
Methanol	44.4	0.275	63.4	6	8.4	0.432	62.2	7
Sodium Hydroxide Solution	76.7	0.084	19.4	2	-	-	-	0 (Total Disintegration)
Sodium Hypochlorite Solution	11.1	0.413	95.2	10	1.1	0.356	51.1	6
Transformer Oil	56.6	0.172	39.6	4	46.6	0.257	37.0	4
Diesel	79.2	0.120	27.6	2	80	0.163	23.4	2
Paraffin	55.5	0.130	30	3	82.3	0.128	18.4	2
Skydrol	59.8	0.117	27	3	26.8	0.132	19.1	2
Petrol	146.6	0.053	12.2	1	265.8	0.046	6.7	1