HydroCoat 103 2K

High Performance Liquid Waterproofing Membrane

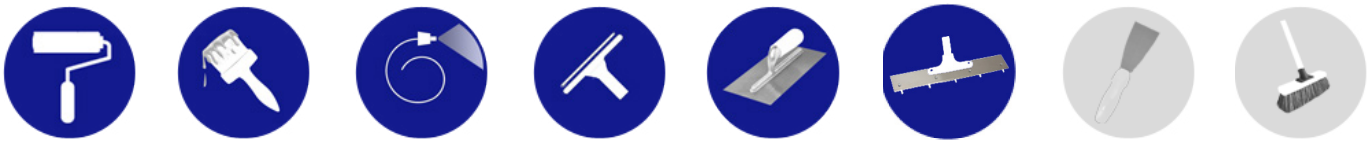
Revision: 5.5 - 23rd July 2025
Code: 103-S

INTRODUCTION

Newton HydroCoat 103 2K is a two-component, thixotropic, cementitious modified polymer waterproofing membrane with high adhesion, designed for the internal and external waterproofing of concrete and steel elements of water-retaining/water-resisting structures such as reservoirs, water tanks, below ground structures, podium decks, balconies and parking areas.

Capable of resisting extremely high positive and negative water pressure, HydroCoat 103 2K forms a hard, highly alkaline coating with a degree of elasticity which has greatly enhanced chemical resistance and so is particularly suited for the protection of concrete within sulphate contaminated ground. It has excellent resistance to the ingress of acid gases, moisture and chlorides to enhance the durability of reinforced concrete and protect highway and coastal structures from chloride attack. HydroCoat 103 2K is reinforced over static joints and at details and changes of direction with HydroCoat 912-RT.

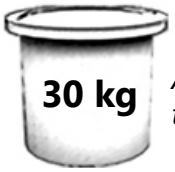
APPLICATION



PROPERTIES

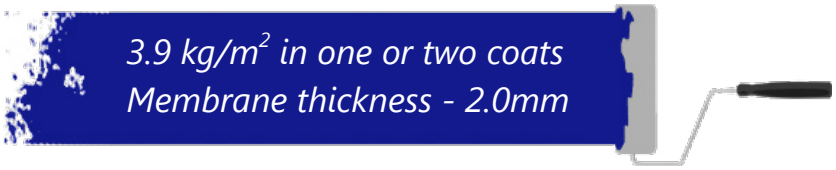
H - Hardness and Durability; E - Elasticity and Flexibility; V - Vapour Resistivity; C - Curing and Drying; W - Working Time; U - UV Stability

PACKAGING



A+B Components, within two containers

COVERAGE



KEY BENEFITS

- Very waterproof - Resistant to 10 bar positive and negative pressure
- Quick application in one coat to horizontal surfaces
- Non-toxic when cured
- Sprayable - Up to 2 m^2 per minute is possible
- Hard, durable and UV-stable trafficable finish
- All year round application to damp substrate
- Can be applied at temperatures as low as 5°C
- Very low VOC content
- Very high diffusion resistance to carbon dioxide gas and chloride ions; equivalent to 100 mm of concrete cover
- Excellent adhesion to sound prepared concrete substrates and steel
- Thixotropic - can be applied at 1 mm to vertical surfaces
- High build coating of 2 mm eliminates the incidence of small defects seen within thinner membranes

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Newton House, 17-19 Sovereign Way
Tonbridge, Kent, TN9 1RH

www.newtonwaterproofing.co.uk
tech@newtonwaterproofing.co.uk
+44 (0)1732 360 095

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High Performance Liquid Waterproofing Membrane

TECHNICAL DATA

Features	Result	Units
Form	Part A liquid + Part B powder	
Colour	Grey	
Mixed density	1.950	
Pack size	30	kg
Yield per pack	15.4	Litres
Shelf life	12	Months
Pot life @ 20˚C & RH of 40%	30	Minutes
Application rate – in one or two coats	3.9	kg/m^2
Application temperature	+5 to +35	ºC
Service temperature	-15 to +180	ºC
Odour	Low – Characterised as polymeric	
VOC content	0	%

Curing*	5°C	10°C	15°C	20°C	25°C	Units
Ready for next coat	80	60	50	40	33	Minutes
To not be adulterated by rain	3	2.5	2	1.5	1.5	Hours
Ready for temporary traffic/protection boards	24	24	22	20	18	Hours
Ready for flood/hosepipe test	8	7	6	5	4	Days
Fully cured	28	28	28	28	28	Days

Cured Performances	Result	Units	Test Method
Colour	Grey		
Membrane thickness in one or two coats	2.0	mm	
Adhesion to concrete	2.07	MPa	BS EN 1542
Tensile strength	2.66	MPa	BS 6319-7:1994
Static crack bridging capability (Class A2)	0.4	mm	BS EN 1062-7 - Method A
Dynamic crack bridging capability	Not classified		BS EN 1062-7 - Method B
Compressive strength – 1 day	>10	MPa	BS 4551
Compressive strength – 7 days	>30	MPa	BS 4551
Compressive strength – 28 days	>40	MPa	EN 12190 & BS 4551
Hardness (28 days)	>75	Shore D	BS EN ISO 868:2003
Water vapour resistance - S_D value	0.91	m	BS EN ISO 7783-2
Water vapour resistance - μ value	455	μ	Calculation from S_D value
Water vapour resistance	4.55	MNs/g	Calculation from S_D value
Water resistance – Positive & Negative	10	Bar	DIN 1048
Liquid Water Transmission Rate (Capillary Absorption and Permeability to Liquid water)	w = 0.018 kg.m^{-2}.h$^{-0.5}$		EN1062-3
Chloride Ion Diffusion Resistance	No steady state of flux reached after 31 years on test		Vinci Technology
Permeability to CO^2	50***	m	EN 1062-6
Thermal compatibility	3.5	MPa	EN 13687-1
Coefficient of Thermal Expansion	16.6 x 10-^{6}K-^{1}		EN1770
Reaction to fire classification	A2-s1, d0	Euroclass	BS EN 13501-1
Wear Resistance	Exceeds BCA AR0,5: Highest classification of wear resistance.		EN13813
UV Resistance - Stable but will discolour	50	Years	UNI EN ISO 11507:2007**
pH	12-14		

The above 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. **UNI EN ISO 11507:2007 is an accelerated ageing test. The result of 1000 hours translates to 50 years. ***2mm equivalent to 100mm of concrete.

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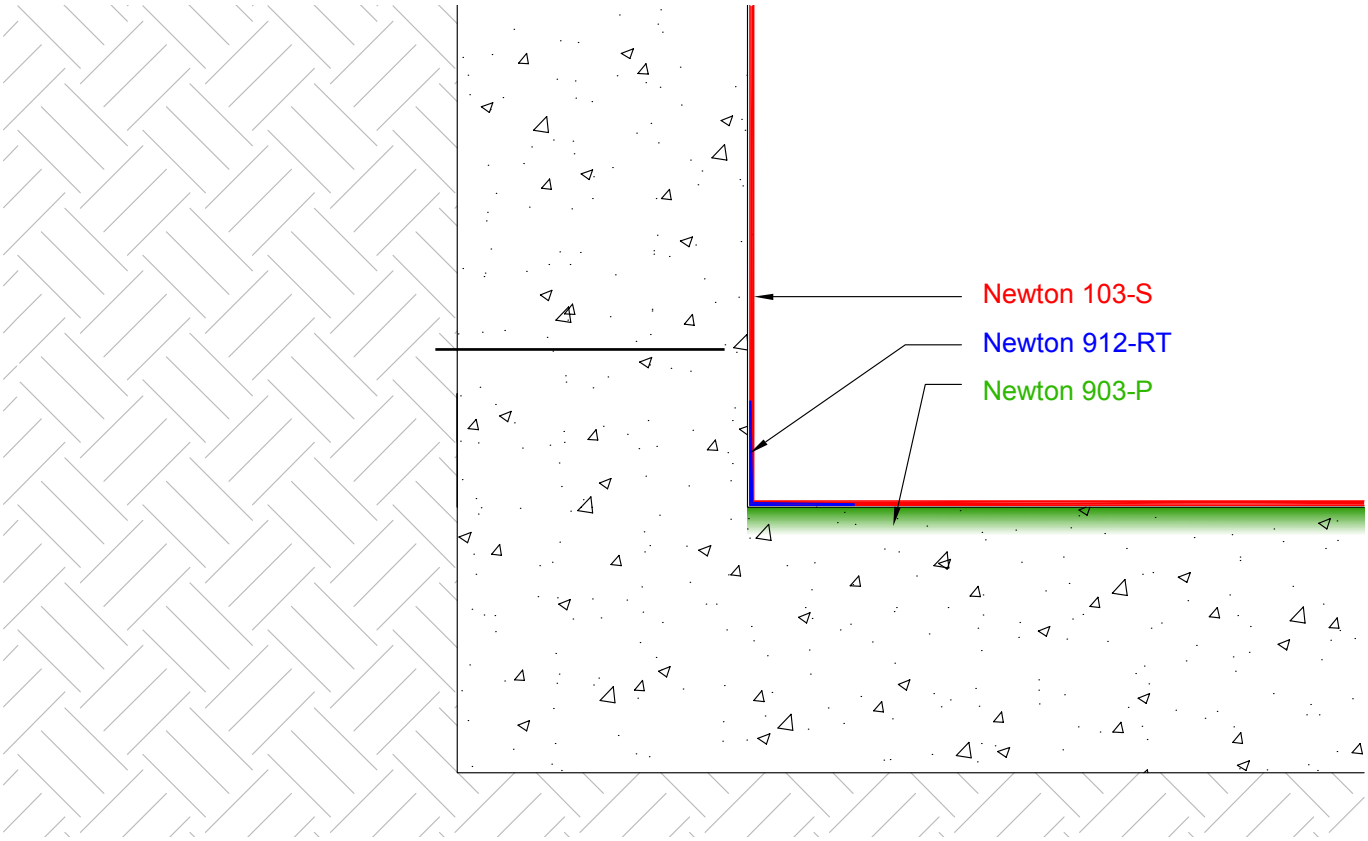
TYPICAL DETAIL



TYPICAL APPLICATIONS

Waterproofing of:

- Podium decks, balconies and car parking areas
- Concrete water-retaining structures such as water tanks and reservoirs
- Concrete 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
- Concrete temporary lay down and working areas

SUITABLE SUBSTRATES

Correctly prepared substrates of:

- Concrete of at least 20 MPa
- Steel
- Structural masonry/mortar

SUITABLE SURFACES

Waterproofing of:

- Walls - Positive pressure & negative pressure
- Slab/raft - Negative pressure
- Soffit - Negative pressure
- Decks & balconies - Positive pressure

METHOD OF APPLICATION

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

SPECIALIST TOOLS REQUIRED

- Spiked roller to ensure captured air is removed and to improve the surface finish
- Spiked shoes to allow traverse without damage to the product and to improve the surface finish

SPECIFICATION

Newton Waterproofing Systems work in partnership with RIBA NBS who publish our products on NBS Source. The platform integrates seamlessly into project workflows, providing all product data from Newton's NBS BIM Objects, NBS Plus Clauses and RIBA Product Selector into one single source of product information.

NBS Source also hosts a large selection of Newton case studies, as well as product literature and certifications.

A wide range of drawings are available on our website.

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FULLY BONDED MEMBRANES

Type A (barrier) protection membranes should be designed and installed to try to overcome defects as outlined in BS 8102:2022 Section 4.3.2 'Defects and remedial measures'. The requirements for the specific properties of the Type A barrier membrane are outlined in Section 8 of the British Standard, on 'Type A (barrier) protection', including Table 3 – 'Waterproofing barriers'.

EXTERNAL pre- and post-applied membranes are resisting a positive hydrostatic head, therefore it is essential that these systems form a full homogenous tank around the structure. Consequently, the membrane itself and all edge and end laps should be tested for resistance to water pressure.

The membrane should also be fully bonded to prevent water entering from a defect and tracking between the membrane and the structure; also known as lateral migration of water from a defect as per BS 8102:2022, Figure 9 – 'Effect of bonded or partially bonded barriers'.

This can be tested by BS EN 1928, Method A. The level of full bond and suitability of use is relevant to both the water depth/pressure tested for both lateral migration and watertightness of the membrane and the laps.

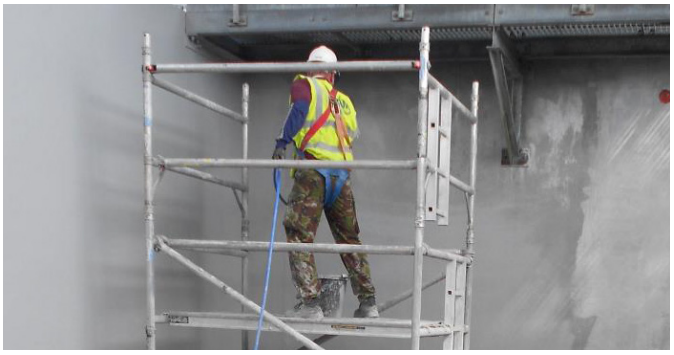
INTERNAL post applied membranes are resisting a negative hydrostatic head, therefore have to form a full homogenous tank that will achieve a sound enough bond to the structure to withstand counterthrust water pressure without the need for a loading structure.

This can be tested to DIN 1048/BS EN 1542 and the level of full bond and suitability of use is relevant to both the water depth/pressure tested for both lateral migration and watertightness of the membrane and the laps.

TRAINING AND COMPETENCY OF THE USER

HydroCoat 103 2K 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 HydroCoat 103 2K and its ancillary products be installed by contractors trained by Newton Waterproofing Systems in the correct use and specification of the product.



PROTECTION OF THE MEMBRANE

The membrane should be seen as an investment and if possible, protected from wear and weathering.

Protection methods include:

- Decks - Newton drainage membrane, NewSeal 408 DeckDrain, with paving or Intensive Green Roof over
- Decks - NewSeal 420 DeckDrain drainage and water storage membrane with Extensive Green Roof over
- Decks - Timber decking
- Decks - Paving on pedestals
- Decks & internal floors - Coloured sands or grit 100% broadcasted to the still tacky final coat to provide an abrasion and slip resistant finish
- Decks - Ceramic tiling adhered directly to 100% broadcast with sand surface. Waterproof grout and waterproof adhesives to be used.
- Internal floors - Ceramic tiling adhered to a de-coupling membrane
- Internal floors - Screed or other floor coverings
- External walls - HydroBond 410 GeoDrain, CDM Fibran XPS 500-C or HydroBond Protection Board

LIFE EXPECTANCY

When specified, installed and protected in accordance with the Data Sheet and Application Guides, is fully and permanently isolated from UV light and physical damage or wearing, and only to those substrates confirmed within, HydroCoat 103 2K has a service life that can be equal to the design life of the structure.

If the membrane is to be exposed, HydroCoat 103 2K is very resistant to mechanical and chemical wear. However, it is impossible to accurately determine the life expectancy as this is dependent on the type, frequency and aggressiveness of the wearing agents. If the wear expectations are high and the membranes not protected, we suggest the O&M manual requests inspection at appropriate intervals. Please speak with the installing contractor or our Technical Team for advice.

HydroCoat 103 2K 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.

Protective wearing coats should be considered. If protected as described in the section above, HydroCoat 103 2K has a service life that can be equal to the design life of the substrate is applied to.

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) 6.1 kg
- Part B (Bag of powder) 23.9 kg

APPLICATION RATE

The membrane is applied to a total thickness of 2.0 mm, which requires an application rate of 3.9 kg/m^2.

Walls and soffits
Application is by two coats, each of 1.95 kg/m^2.

Horizontal surfaces
Application is by two coats, each of 1.95 kg/m^2 or by a single coat of 3.9 kg/m^2.

At a thickness of 2.0 mm, a 30kg composite pack covers a total surface area of 7.7m^2.

ANCILLARY PRODUCTS

- HydroCoat 903 Primer - Purchase Code 903-P. Primer for concrete
- HydroCoat 905-CM - Purchase Code 905-CM. Curing membrane to prevent accelerated drying during hot or very windy conditions
- HydroCoat 912-RT - Purchase Code 912-RT. Reinforcement Tape for static joints and construction joints
- HydroCoat 107 Elastic 2K - Purchase Code 107F. Flexible waterproofing membrane for use with HydroCoat 912-RT above shrinkage joints

CONSTRUCTION

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

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.

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 HydroCoat 103 2K.

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.

HydroCoat 103 2K can be applied to new concrete:

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

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 HydroCoat 203-RM 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 HydroCoat 203-RM.

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 HydroCoat 908-LB mixed into the gauging water at 1:2.

Porous block walls should be filled by bag-rubbing with sand/cement or HydroCoat 105 1K.

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

Remove snots.

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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 Newton Waterproofing Technical Department who will advise on the correct levelling product.

Large holes or indentations should be filled HydroCoat 203-RM.

JOINTS & CHANGES OF DIRECTION

Reinforce static joints with HydroCoat 912-RT

Over shrinkage joints, use Newton 107F bedded into 25mm wide masking tape to create delamination.

With movement joints, lap the 103-S into the joint and then use our standard FlexProof 106 movement joint detail.

Please speak to our Technical Department if you require assistance on the correct specification to joints.

PRIMING

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

Internal slabs and rafts - Porous substrate should be sealed with 903 Primer.

External decks - Should be primed with 903 Primer.

Please read the 903 Primer data sheet before commencement of application.

MIXING

Newton Waterproofing supply the full range of Collomix Mixing Equipment that includes Hand Mixers, Stirrers, Mixing Stands, Buckets, Transport Carts and the Mixer Clean mixing bucket. 103 2K can be mixed with the DLX (preferred) and KR stirrers, matched to the Xo 1 or Xo 4 Hand Mixers 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 and pour into clean container
- 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.

Apply as explained within the APPLICATION RATE section on page 5.

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. In addition, a primer of 908-LB mixed 1:1 with water can be applied to enhance adhesion of the second coat to the first.

SPRAYING SPECIFICATION

HydroCoat 103 2K can be sprayed with an airless spray machine.

For information on the machine and configuration, please contact our Training Department.

WET FILM THICKNESS

Regularly check the coating thickness using a wet film thickness gauge. (available from Newton)

WARM WEATHER WORKING

During warm weather, the application should be planned so as to minimise the effects of excessive air and substrate temperature.

- Do not apply when the air of surface temperature is at 30°C and rising
- Start the application in the afternoon, as the temperatures are starting to fall to avoid outgassing issues
- Store in cool shaded areas and only bring out into the open as needed - consider site refrigeration
- Mix under shade - if possible, shade the working areas

CURING

For curing/drying times please see Technical Data on page 2. HydroCoat 103 2K is a cement-based product and requires curing. Accelerated drying is to be avoided.

If the conditions are hot, sunny and/or very windy the finished membrane must be protected from accelerated drying with the application of HydroCoat 905-CM, a simple to apply liquid curing membrane.

In floor and deck applications, coloured sands or grit can be cast 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.

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COLOUR

Grey - Coloured UV stable protective coatings available.

CLEANING

Thoroughly clean all tools and equipment with water 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 within the appropriate Application Guide

HEALTH & SAFETY

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

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, a shelf life of up to 12 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.

POT LIFE & FURTHER USE

HydroCoat 103 2K is a two-part product and a chemical curing reaction starts as soon as the two parts are mixed. Pot life is 30 minutes at 20°C. Product must be used before it starts to go off/over thicken.

CHEMICAL RESISTANCE

THE EFFECT OF VARIOUS CHEMICALS ON THE PROPERTIES OF HYDROCOAT 103 2K

40 x 40 x 160mm prisms of HydroCoat 103 2K were cast in sets of 6 and cured for 28 days at 20°C and 65% R.H. The prisms were weighed and measured prior to immersion in the following solutions at 20°C.

3 prisms were removed from solution at 28 days and the remaining 3 were removed at 90 days. After removal the prisms were weighed and measured and tested for flexural strength. The surface condition of the prisms was evaluated and each set was given a mark out of 10 with respect to hardness of surface, amount of surface disruption and salt growth. The mean depth of penetration of liquid into sample was measured on the broken face of each prism immediately after the flexural test.

RESULTS

See table below.

CONCLUSION

Although the overall chemical resistance of HydroCoat 103 2K is much better than normal concrete, for high demand applications DampSafe / NewCoat DPM should be considered.

	28 DAY IMMERSION					90 DAY IMMERSION				
TEST MEDIUM	MASS CHANGE (%)	VOLUME CHANGE (%)	FLEXURAL STRENGTH (N/mm²)	% CONTROL STRENGTH	SURFACE CONDITION	MASS CHANGE (%)	VOLUME CHANGE (%)	FLEXURAL STRENGTH (N/mm²)	% CONTROL STRENGTH	SURFACE CONDITION
DEIONISED WATER (control)	+1.6	+0.1	11.97	-	10	+2.5	+0.4	12.89	-	10
AMMONIUM SULPHATE (10%)	+6.1	+6.1	10.59	88.5	6	+13.3	+19.9	8.85	68.7	1
MAGNESIUM SULPHATE (25%)	+1.5	+0.4	12.15	101.5	9	+3.2	+2.7	13.48	104.6	6
SODIUM HYPOCHLORITE (10%)	+1.3	+0.5	12.16	101.6	10	+1.4	-0.3	13.25	102.8	10
SODIUM HYDROXIDE (25%)	+1.2	-0.7	12.73	106.4	9	+1.4	-0.2	12.37	96.0	9
SYNTHETIC SILAGE	+0.8	-1.0	10.18	85.0	8	+1.0	-1.0	10.14	78.7	8
HYDROCHLORIC ACID (10%)	+0.3	-0.5	9.58	80.0	7	+0.7	-0.2	10.62	82.4	6
SULPHURIC ACID (10%)	+20.2	+28.3	6.71	56.1	0	+29.6	+49.6	4.52	35.1	0
FERROUS SULPHATE (25%)	+2.3	+1.1	12.73	106.4	10	+3.2	+1.2	13.21	102.5	9
AMMONIUM NITRATE (10%)	+2.8	-0.5	9.80	81.9	10	+2.6	-0.1	10.17	78.9	10
ACETIC ACID (10%)	+0.1	+1.1	7.33	61.2	8	-0.8	+0.4	5.75	44.6	7
METHANOL	+1.7	+0.2	8.58	71.7	10	+2.9	-0.3	10.50	81.5	10

NOTES

(i) % mass and % volume change calculated using the mass and volume of the prisms before immersion in the test media.
(ii) Surface condition graded from 0 up to 10. 10 = perfect surface, 0 = total disruption of surface.

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CE 15	JN NEWTON WATERPROOFING	Newton Waterproofing Systems Newton House 17-19 Sovereign Way Tonbridge Kent TN9 1RH	103-S EN 1504-2:2004 0086 Surface Protection System for Concrete

Essential Characteristics	Declared Performance	Test Standard	Harmonised Technical Standard
Compressive strength	40 MPa Class 1	BS EN 12190	BS EN 1504-2:2004
Permeability to CO^2	Equivalent to 100m of concrete	BS EN 1062-6	
Permeability to water vapour	S_D <5m Class I Permeable to water vapour	BS EN ISO 7783-2	
Capillary Absorption	<0.1kgm^{-2}h$^{-0.5}$ Class III	BS EN 1062-3	
Adhesive bond	≥ 2.0 MPa	BS EN 1542	
Thermal compatibility	> 2.0 MPa	BS EN 13687-1	
Coefficient of thermal expansion	≤30 x 10^{-6} Pass	BS EN 1770	
Dangerous Substances	Complies	Clause 5.4	
Reaction to fire	Euroclass A2-s1, d0	BS EN 13501-1	
Chloride ion diffusion	Steady state not reached after 31 years on test	UK method	

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