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Product Data Sheet PDS052: Armourcoat Acoustic Plaster System

1 Product Description

Armourcoat Acoustic Plaster System offers the appearance of a consistent smooth seamless marble plaster surface combined with exceptional sound absorption and acoustic performance.

Armourcoat have used their considerable expertise in the formulation of marble based plaster finishes to create an elegant plaster finish that appears smooth and even but still allows sound waves and energy to pass through the surface so they can be absorbed and attenuated in the layer of mineral wool beneath the surface.

The system comprises of a special mineral wool composite panel pre coated with the system Basecoat. The panels are bonded onto the substrate using Armourcoat Bondplast and then finished with a seamless layer of the Armourcoat Acoustic plaster.

Armourcoat Acoustic Plaster System can be pigmented to a wide range of colours and is suitable for application to both flat and curved surfaces.

2 Properties

- Natural mineral system
- Mineral wool panels with 70% post consumer recycled content
- Acoustic Basecoat made from expanded glass foam granules with 85% recycled content
- Acoustic Topcoat plaster made from up to 70% pre consumer crushed marble
- Contains no VOCs
- Factory prepared panels for immediate installation
- Seamless finish with exceptional acoustic management performance
- Resistant to mould and mildew
- Up to 200m² without joints
- Wide range of colours available
- 28 mm system 6.5 kg/m²
- 48 mm system 8.4 kg/m²

3 Health and Safety

A dust mask and gloves should always be worn when mixing or handling these system component products. A dust mask, eye protection and gloves should be worn during the installation of the panels and the sanding process. If contact occurs with any system component wash affected areas with soap and water.

4 Suitable Substrates

Armourcoat Acoustic Plaster System can be applied to a wide range of substrates which should be firm and true and will not move or crack. The most common substrate for the system is plasterboard suspended on a metal frame system. All joints should be taped with a reinforcing mesh and the joints filled flush. The Armourcoat Acoustic Plaster System can also be applied directly to a concrete or blockwork substrate as well as existing plastered and painted surfaces.

5 Mixing Instructions

Armourcoat Acoustic panels are pre-coated with the system Basecoat ready to be affixed to the substrate using Armourcoat Bondplast.

5.1 Armourcoat Bondplast

Armourcoat Bondplast is a specially formulated gypsum glue. Please refer to PDS23 for more detail on Armourcoat Bondplast. Always use a dust mask and wear gloves and eye protection when mixing Armourcoat Bondplast. Armourcoat Bondplast is packed in 20kg bags as a powder.

- Empty the required amount of Armourcoat Bondplast into a 30 litre mixing tub. Add clean cold water and mix using a paddle drill to achieve a smooth, lump free consistency. The 20kg bag of Armourcoat Bondplast requires approximately 9-10 litres of water.
- 20kg bag of Armourcoat Bondplast mixed with water will be sufficient to affix 18- 20m² of Armourcoat Acoustic panels.
- Once mixed Armourcoat Bondplast is useable for up to 60 minutes. Initial set is between 80-90 minutes and final set at around 120 minutes.

5.2 Panel Joint Filler

The Panel Joint Filler is a specially formulated lightweight mix of resin and expanded glass foam granules which when mixed together form a mousse like material which is pressed into the joints between panels and left to dry out.

Mix 20 litres of the lightweight filler powder with 4.8 litres of joint filler resin for 1- 2 minutes with a plaster mixing drill until you have achieved a creamy consistency.

- Once mixed the Filler will be useable for 10-20 minutes after which time it will start to feel a little dry. Add a small amount of extra resin mix or water and re stir.
- Do not try to work the Filler, rather just press it into the joins between panels using a trowel and quickly trowel over once to press the material in. Leave to dry fully before sanding back to a flat surface.

5.3 Armourcoat Acoustic Topcoat

Armourcoat Acoustic Topcoat is a premixed plaster. Mix the Topcoat for at least 2 minutes using a plaster mixing drill immediately before use and apply to the base panels with a notched trowel. Smooth down with a stainless steel trowel. The Topcoat can also be sprayed applied and then smoothed down.

6 Application Instructions

Please refer to the **Armourcoat Acoustic - Installation Guide** for application details for the Armourcoat Acoustic Plaster System.

In the UK and certain parts of Europe Armourcoat will supply and install Armourcoat Acoustic Plaster System directly. Elsewhere in the world the system may be supplied and installed by an Armourcoat partner company. Each partner company will provide the system warranty and will be responsible for all aspects of specification and technical detailing with the specifier and contractor. Each partner company will be responsible for the supply and installation of Armourcoat Acoustic Plaster System to brand standards and to project schedule.

Armourcoat Acoustic Plaster System will not be supplied to and cannot therefore be installed by general contractors. In any doubt about the validity of any installation contractor in respect to this system, please contact Armourcoat's global head offices.

7 Test Data

7.1 Fire

7.1.1 British Fire Test

Independent tests were carried out in the UK on the *40mm Armourcoat Acoustic Plaster System, for fire spread the system in accordance with BS 476:Part 6:1989+A1 and BS 476: Part 7:1997.

BS 476: Part 6: 1989+A1: 2009

Fire propagation index, I	4.4
Subindex,i1	1.2
Subindex,i2	2.4
Subindex,i3	0.8

BS476: Part 7: 1997 Class 1 surface spread of flame.

Results: tests to BS 476:Part 6:1989+A1:2009 and BS 476: Part7:1997 demonstrate that the product complies with the requirements for **Class 0** as defined in paragraph A13(b) of Approved Document B, 'Fire Safety' to the Building Regulations 2000.

*Please note: Armourcoat no longer supply the 40mm Acoustic Plaster System.

7.1.2 European Fire Test

Independent tests were carried out in the UK on the 48mm Armourcoat Acoustic Plaster System, for classification of reaction to fire performance in accordance with EN13501-1:2007+A1: 2009.

Reaction to fire classification:
A2 - s1, d0

7.1.3 Australian Fire Test

Independent tests were carried out in Australia on the Armourcoat Acoustic Plaster System components in accordance with AS/NZA 3837:1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.

Specimen Tested	BCA Group Classification Prediction
Acoustic Board	1
Acoustic Basecoat	1
Acoustic Topcoat	1

7.1.4 American Fire Test

Test carried out in accordance with the procedure outlined in ASTM E84-20, "Standard Test Method for Surface Burning Characteristics of Building Materials"

Test	28mm Acoustic Plaster System	48mm Acoustic Plaster System
Flame Spread Index	15	15
Smoke Spread Index	5	10
Flame Spread Classification	A	A

7.2 VOC Testing

7.2.1 VOC Content Testing

A sample of Acoustic Topcoat was tested for VOC content by an accredited European laboratory following procedures outlined in ISO 11890-2 "Paints and varnishes. Determination of volatile organic compound (VOC) content".

Test Method	VOC (grams/litre)	VOC (Lbs/Gal)	Comments
ISO 11890-2	< 1.0		Limit of detection = 1 g/L

7.2.2 VOC Emissions Testing

A sample of Armourcoat Acoustic Plaster System was tested for indoor air quality following the requirements of CDPH/EHLB/Standard Method by an accredited American laboratory.

Environment	Product Usage	Product Surface Area	Room Volume	Ventilation Rate (ACH)	Product Compliance?
Classroom	Ceiling	89.2 m ²	231 m ³	0.82	Yes
Office	Ceiling	11.1 m ²	30.6 m ³	0.68	Yes
Residential	Ceiling	217 m ²	547 m ³	0.23	No

The regulations or protocols described below are accredited on line with EN ISO/IEC 17025 by DANAK (no. 522). This accreditation is valid worldwide due to mutual approvals of the national accreditation bodies (ILAC/IAF, see also www.eurofins.com/galten.aspx#accreditation).

Regulation or Protocol	Conclusion	Version of Regulation or Protocol
BREEAM International	Exemplary Level	BREEAM International New Construction v2.0 (2016)
Indoor Air Comfort®	Pass	Indoor Air Comfort 7.0 of May 2020
French VOC Regulation	A+	Decree of March 2011 (DEVL1101903D) and Arrêté of April 2011 (DEVL1104875A) modified in February 2012 (DEVL1133129A)
French CMR components	Pass	Regulation of April and May 2009 (DEVP0908633A and DEVP0910046A)
Italian CAM Edilizia	Pass	Decree 11 October 2017 (GU n.259 del 6-11-2017)
ABG/AgBB	Pass	Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (June 2021)
Belgian Regulation	Pass	Royal decree of May 2014 (C-2014/24239)

Testing was carried out by Eurofins - Product Testing, Denmark.

7.3 Acoustic Performance and Noise Reduction Coefficient

Independent tests were carried out in the UK on the Armourcoat Acoustic® Plaster System to determine the Sound Absorption Coefficient (α_s), conducted in accordance with European Standard EN ISO 354. Single figure ratings of sound absorption performance, known as the Weighted Sound Absorption Coefficient (α_w), Sound Absorption Class, Sound Absorption Average (SAA) and Noise Reduction Coefficient (NRC) are derived from these measurements in accordance with European Standard EN ISO 11654 and American Standard ASTM C423-17. Tests were carried out by the AIRO Acoustics Laboratory, a UKAS accredited testing laboratory No. 0483, on 18th December 2019 and 22nd April 2020. The Armourcoat Acoustic® Plaster System achieved BS EN ISO 354:2003 Weighted Sound Absorption Coefficient (α_w) of 0.85, class B (28mm system) to 0.95, class A (48mm system).

Thickness	EN ISO 354:2003	ASTM C423-17		
	Weighted Sound Absorption Coefficient (α_w)	Class	Sound Absorption Average (SAA)	Noise Reduction Coefficient (NRC)
28mm	0.85	B	0.82	0.80
48mm	0.95	A	0.92	0.90

7.4 Mold Resistance

Samples were tested in accordance with:

ASTM D 3273-16 – “Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber”.

Sample	Week 1	Week 2	Week 3	Week 4
Acoustic Topcoat - AP335 Rep 1	10	10	10	10
Acoustic Topcoat - AP335 Rep 2	10	10	10	10
Acoustic Topcoat - AP335 Rep 3	10	10	10	10

*Rating system: 1 is very poor. 10 is no growth

Testing was carried out by an accredited American testing laboratory.

7.5 LEED Contribution

Contribution statement: Armourcoat Acoustic Plaster System qualifies for points under the LEED Green Building Rating System.

LEED is a set of performance standards based on existing and proven technology to evaluate environmental performance from a whole building perspective over the building's lifecycle. They provide a definitive standard for what constitutes a green building in design, construction and operation.

LEED guidelines vary from one program to another. Categories may change. Consultation with the Green Building Certification Institute is recommended.

EA Credit 1 - Optimise Energy Performance

Armourcoat Acoustic high density mineral wool panels provide additional thermal insulation which reduces energy use for optimised energy performance.

MR Credit 4 - Recycled Content

Armourcoat Acoustic consists of up to 80% recycled content including post consumer and pre consumer recycled material.

IEQ Credit 4 - Low Emitting Materials

Armourcoat Acoustic has no harmful volatile organic compounds.

IEQ Credit 7.1 - Thermal Comfort, Design

Armourcoat Acoustic high density mineral wool panels provide an excellent source of thermal insulation, reducing energy use and providing improved thermal comfort.

EQ Credit 9 - Enhanced Acoustical Performance

Armourcoat Acoustic has been professionally and independently tested proving it will effectively absorb and dispel sound energy thus decreasing echo and reverberation, providing a much improved sound quality environment.

Please see LEED STATEMENT for further details.

8 Coverage Rates

Armourcoat Acoustic panels are 1000mm x 600mm, thus 0.6m²

1- 1.2 kg of Armourcoat Bondplast will cover 1m² (1 x 20kg unit will cover 17 - 20m²)

1 unit of Joint Filler (20 litres Joint Filler Powder and 4.8 litres Joint Filler Liquid) will cover approximately 50m²

3 - 3.5kg of Topcoat will cover 1m² (1 x 24 kg unit will cover approximately 7- 8m²)

9 Site Conditions

Areas to receive the Armourcoat Acoustic system must be prepared in accordance with Armourcoat Specification planning document and System details and be fully dry.

Site temperature should be maintained as constant as possible and always above a minimum of 10°C at night. Working temperature should be between 15 - 25 °C. At temperatures above 25 °C the working time will be reduced and this may affect the maximum achievable area. The maximum relative air humidity and moisture level must not exceed 75%.

10 Storage

Store Armourcoat Acoustic pre coated panels on the pallet they are delivered on free from moisture and away from potential damage in temperatures at 5°C and above.

Store Armourcoat Bondplast away from moisture and in temperatures at 5°C and above.

Store the Filler components in temperatures at 5°C and above.

Store the Topcoat tubs in temperatures at 5°C and above. Do not overstack.

11 Shelf Life

Armourcoat Acoustic pre coated panels are inert and do not require a shelf life guide.

Armourcoat Bondplast has a shelf life of 6 months.

Armourcoat Panel Joint Filler resin has a shelf life of 1 year.

Armourcoat Acoustic Topcoat has a shelf life of 1 year.

Whilst every attempt has been made to ensure the accuracy and reliability of the information contained in this document, the information should not be relied upon as a substitute for formal advice. Armourcoat Ltd, its employees and agents will not be liable for any loss or damage, of any kind, arising out of or in connection with the use of this document. Please refer to the company disclaimer for further details.