



ACOUSTALAY

ACOUSTIC UNDERLAY

Product Application Guide



- High Quality Australian-made Recycled Rubber and Rubber and Cork Acoustic Underlay
- For use with Laminate, Timber, Carpet, Sheet vinyl, Vinyl planks and Vinyl tiles
- Meets or Exceeds BCA Acoustic requirements
- CSIRO tested
- Environmentally preferable

Packed with Features and Benefits

- Superior acoustic properties
- Suitable for Domestic or Commercial, Internal or External applications
- Can be loose laid or glued down
- Permanently resilient
- Long lasting and hard wearing



THAT'S CONFIDENCE

AIRSTEP ACOUSTALAY

Product Overview - Impact sound insulating underlay

SPECIFICATION

Material:	Polymerically bound recycled rubber (and granulated cork)
Appearance:	ACOUSTALAY cork/rubber – Density 720 Cork 720kg/m ³
Thickness:	3mm with other thicknesses available on request.
Dimensions:	All rolls 1.2 metres wide x 15m long
Tolerance:	Roll width $\pm 1.5\%$ Roll length $\pm 1.5\%$ Thickness $\pm 0.3\text{mm}$ Density $\pm 1.0\%$

Impact Sound Reduction:	$\Delta L_w = 43 \text{ dB}$ with carpet and Prime underlay $\Delta L_w = 22 \text{ dB}$ with 2mm sheet vinyl $\Delta L_w = 19 \text{ dB}$ with floating laminate 8 mm $\Delta L_w = 18 \text{ dB}$ with timber
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Tests carried out by CSIRO to the EN ISO 140-8 standard.

Physical Properties:	Tear resistance 3.1N/mm ² (ISO 4674.1-2003 (E)) Hardness (Shore A) 50.0 (ASTM D2240-2003) Elongation at break 37.5% (AS2001.2.3.2-2001) Temperature range -25°C to 80°C
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Disclaimer: The above specifications are derived from periodic tests taken on actual product from the manufacturing process. The data shown above represents the average values and/or performance calculated from these tests. Some variances are possible due to the use of recycled raw materials and common manufacturing tolerances. All users of the product despite our application examples should test for suitability of purpose prior to application. All orders for this product are subject to our standard Terms and Conditions of Sale.



ACOUSTALAY

HELPS TO MINIMISE THE EFFECTS OF IMPACT NOISE THROUGH HARD FLOOR SURFACES

Suitable for installation under timber, laminate, vinyl, conventional carpet & carpet tile and all other types of flooring applications.

FEATURES AND BENEFITS

- Most importantly – All Australian made.
- Suitable for residential and commercial flooring applications.
- Meets and exceeds requirements of current Building Code of Australia (BCA) for impact sound transference.
- Up to 43 Db sound reduction.
- Environmentally friendly; made from recycled rubber.
- Quick and easy to install.
- Suitable for loose lay and direct stick applications.
- Suitable for use with underfloor heating systems.
- Precision manufacturing provides uniform material thickness.
- Will help alleviate the clicking noises which can be heard through laminate and timber flooring.
- Will provide additional cushioning effect with carpet and vinyl.
- Minimises construction of floor heights.
- Airstep Acoustalay is guaranteed for the life of your floor covering.

GUIDE TO EXPECTED PERFORMANCE

AIRSTEP ACOUSTALAY has been designed to 'Deemed to Satisfy' the requirements of the Building Code of Australia (BCA), Part 5 – 'Sound Transmissions and Insulations, Class 2 or 3 buildings – Floors of $L_{n,w}$ 62'

All tests were carried out and installed in situ on a slab of 150 mm thickness with NO CEILING. Higher results can be achieved with the addition of a generic ceiling system, the value of which depends on the system employed.

***** Remember that the lower the $L_{n,w}$ means a better result**
eg $L_{n,w}$ 59 has exceeded compliance by 3 points.

FLOORING SYSTEM TESTED	DELTA ΔL_w (dB) reduction	ADHESIVE	AIRSTEP IMPACT SOUND ACOUSTIC UNDERLAY TESTED	$L_{n,w} + C_I$ RESULT
2 mm Vinyl Plank Direct stick	20	2 part Polyurethane	Acoustalay	$L_{n,w} + C_I$ = 57
Carpet OVER PRIME UNDERLAY	43	Nil	Acoustalay	= 30 Exceeds by 32
8 mm laminate floating floor	19	Nil	Acoustalay	= 59 Exceeds by 3

Appearance:	AIRSTEP ACOUSTALAY cork/rubber – density 720, cork 720 kg/m ³
Thickness:	3 mm with other thicknesses available on request.
Dimensions:	All rolls 1.2 metres wide x 15 m long.
Tolerance:	Roll width $\pm 1.5\%$ Roll length $\pm 1.5\%$ Thickness ± 0.3 mm Density $\pm 1.0\%$

Tests carried out by CSIRO to the EN ISO 140-8 Standard.

Disclaimer: The enclosed information is given in good faith as a suggested guide in specifying Bridgestone Airstep Acoustalay. Bridgestone Airstep Acoustalay is specifically designed for the reduction of impact sound (footfall only). The measured impact noise reduction results of this product have been provided by CSIRO, Hightett, Victoria in accordance with EN ISO 140-8 Standard. These results should not be read as a guarantee for any specific application; they are only indicative of their expected performance. The product should be tested in situ to establish suitability of purpose by a registered Acoustic Engineer.

AIRSTEP ACOUSTALAY

INSTALLATION GUIDELINES

Never stand or store rolls on their end, always keep on a flat level surface. If possible roll out 24hrs prior to cutting to allow the material to relax and acclimatize.

Keep rolls between 18°C and 24°C or at the ambient room temperature for 24 hours prior to installation.

*All **Airstep Acoustalay** rolls must be installed in the same direction and allowed to relax unrolled for a minimum of 2 hours before cutting or adhering.*

Preparation is the key to any successful flooring installation. Reasonable time should be spent to ensure that your subfloor is prepared well. Concrete and/or any floor type that is to be adhered to must be dry*, clean, smooth, level, be free of oil, grease, fat, curing compounds, old adhesive residue, paint, wax, sealers and any extraneous materials.

**If specified then the rolls must be adhered to the sub-base using only the specified adhesive. A concrete moisture test should be carried out to make sure the floor is dry (below 5.5%) and meets the manufactures specifications.*

Once the subfloor is prepared, establish your starting point by rolling out one **Airstep Acoustalay** roll (vertically long seams to go with the traffic flow where possible) and position it against the wall and/or square with the desired run configuration. Continue to roll out all the **Airstep Acoustalay** rolls for the entire installation that is to be adhered or laid in the one day. Lengths can be trimmed in position if required. All seams are to be butt jointed using the precision cut factory edges.

*To apply adhesive fold the first sheet to be glued in half length ways. Apply the adhesive as per manufactures specifications. Carefully roll back the **Airstep Acoustalay**. Immediately ensure proper contact with the adhesive by rolling the floor with a flooring roller. Next roll back the other half of the first sheet and half of the adjoining sheet and apply adhesive. Continue repeating the rolling in of the sheet and application of the adhesive as previous and for the remaining area.*

GUIDE TO ACOUSTIC REQUIREMENTS - NEW AND EXISTING BUILDINGS

The following information is a guideline to various acoustical requirements for both new and existing buildings. Please use this information as a guide only and always check with your own Strata Management, Council or building requirements.

Building Code of Australia Compliance

Bridgestone Australia Ltd has shown BCA compliance with all our recommended acoustic underlay systems by completing extensive independent testing conducted by CSIRO (Melbourne) accredited laboratories.

Building Code of Australia

The Building Code of Australia provisions require the field tested L'n, Tw +C1 of a floor to have:

- "An L'nT,w+C1 not more than 62 for floors separating dwellings and for floors separating dwellings from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification."

Compliance with BCA and Strata Schemes Management Act 1996

Hard floor surfaces have the potential to cause undue noise being transmitted to tenancies below as a result of footfall impacts. Both the Building Code of Australia and the Strata Scheme Management Act 1996 specify general requirements.

Strata Schemes Management Act 1996

There are different by-laws for every apartment block and the owner of the apartment must obtain a copy of such by-law to ensure that no additional restrictions or ratings are required.

An example of a typical requirement under the Strata Schemes Management Act 1996 by-law 5 states:

- An owner must ensure that all floor space within the Lot is sufficiently covered or otherwise treated to prevent the transmission from the floor space of noise likely to disturb the peaceful enjoyment of the Owner or Occupier of another Lot.
- Without limiting the requirements of this by-law, if an Owner is utilising a floor finish within an Owner's Lot other than carpet the minimum sound transmission standard to be achieved for any such floor finish must be the standard prescribed, at the time of installation, by the Building Code of Australia or Council of your city, whichever is the higher standard.
- An Owner must provide the Owners Corporation with an acoustic report signed by an Acoustic Engineer or other appropriately qualified person following installation of a floor finish other than carpet to demonstrate compliance with this by-law, if requested to do so by the Owners Corporate.

If in doubt, ask your local authority.

EXPLANATION OF COMMONLY USED TERMS, ABBREVIATIONS AND SYMBOLS IN THE FIELD OF ACOUSTICS

1. Comparing IIC (or L_{n1w}) ratings for different Impact Sound Acoustic Underlays is not possible without knowing the test condition, as these ratings, normally conducted in the field (FIIC), are for the entire system and not solely for Bridgestone Airstep Impact Sound Acoustic Underlays.

To achieve meaningful comparisons, the products must be subjected to the same test conditions.

IIC rating examples:

- IIC 45 – below BCA requirement
- IIC 50 – clearly audible
- IIC 55 – audible
- IIC 65-75 – normally inaudible

There are two methods of rating the impact insulation of floors as measured in a laboratory in Australia.

- or
- 1 IIC or Impact Insulation Class measured in accordance with American Standard E 492
 - 2 L_{n1w} or Weighted Normalised Impact Sound Pressure Level, measured in accordance with International Standards ISO 140. A 'spectrum adaptation term' denoted as C1 may also be applied to de-rate floor performance at low frequencies. The resulting measurement term is denoted as $L_{n1w} + C1$ and is proposed in the BCA.

The methodologies for the tests described above are similar and generally the L_{n1w} can be obtained by subtracting the IIC value from 110. There are also corresponding test methods for rating the impact insulation of floors measured in situ eg in apartment buildings.

2. L_{n1w} : weighted normalised impact sound pressure level is the European single figure rating for transmission loss of impact sound through building elements. In general, the lower the L_{n1w} , the better the performance. The 1/3 octave range used is 100 to 3150 Hz.
3. L_{nT1w} : weighted standardised impact sound pressure level.
4. dB: abbreviation for the sound pressure level measurement – decibel. A decibel is 1/10 of the logarithmic ratio Bel.
5. Flanking: sound energy is transmitted into a receiving room by a path other than the building element being considered eg sound bypassing a tested floor system via a wall.
6. ISO: abbreviation for International Standards Organisation.
7. Impact Sound/Structure borne sound: sound energy travelling through a solid object, such as footsteps through floor.
8. R_w : weighted sound reduction index is the European single figure rating for airborne reduction through building elements. In general, the higher the R_w , the better the performance. The 1/3 octave range used for calculating R_w rating is 100 to 3150 Hz.
9. STC: Sound Transmission Class. An American method for determining a single figure rating for transmission loss of airborne sounds through a floor. In general, the higher the STC, the better the performance. The 1/3 octave range used is 125 to 4000 Hz.
10. IIC: Impact Insulation Class, an American method for determining a single figure rating for transmission loss of impact sounds through a floor. In general, the higher IIC, the better the performance. The 1/3 octave range used is 125 to 4000 Hz.
11. FIIC: Field Impact Isolation Class measures impact noise-on-site tested (field).

AIRSTEP ACOUSTALAY

ACOUSTALAY ROLLS AND TILES

Q; What is the Building Code of Australia and what does it mean to comply with Lnw, 62.

In May 2004 there was a decision taken by the BCA to improve the Impact (footfall) sound quality being transferred through floors especially for the rapidly growing high rise and medium rise, high density housing areas. Consumer demand for improved standards of acoustic insulation had forced a major change in the treatment of rigid floor surfaces. The Building Code of Australia underwent a total reappraisal of the floor finishes and systems and the "The deemed to satisfy" provisions were increased. The terms to describe the new impact sound insulation of the floor is known as "the weighted normalised impact sound pressure level (Lnw)" with a minimum requirement being no more than Lnw, 62.

Acoustalay products tested meet and in most cases exceeded this requirement.

Q: What advantage does an Acoustalay rubber/cork underlay have over other types of underlays such as foam etc.:

Installing a rubber underlay will also help with the ambience finish of a floor within a room and will help provide extra softness underfoot. It will help with the ambience noise within the room itself by helping to alleviate those clicky noises that can be heard especially under laminate type flooring. With the increasing demand for high-rise units, multi storey, townhouses and homes, combined with the demand for fashionable new hard floor surfaces comes the need for impact sound insulation products that can reduce the noise levels. In both new and old buildings, the transmission of impact sound such as footfall noise and moving furniture can become annoying.

Acoustalay will never deteriorate as they are made only of rubber and cork, and do not have any other filler materials like foam added like some other opposition products. Being made of recycled rubber tyres the longevity of the product is unsurpassed. The sound ratings of the floor will still be the same in 20 years as it was the day you installed it. When comparing to some other foam products that do lose memory over time therefore consequently the acoustic values of the floor will also diminish which could cause problems for the owner some time down the track. The actual installation cost of installing foam is the same as installing rubber so realistically speaking the end user will have a far superior product flooring system installed at no added cost.

Q; With all the enquiries we are getting about High Density Living, will these products meet the Fire Code? - In relation to fire code -

With the way the current BCA requirements for the acoustic underlay, it is not tested as an individual component - it is tested as part of the complete flooring system. As you know there are hundreds of different floor finishes available and results for the finished floor coverings will always vary. The acoustic underlay once installed is then classed as the substrate whether it is over the existing concrete, timber or other sub surfaces. Acoustalay should and is always intended to be covered as it is not intended in its own right to be a finished flooring product.

When testing is performed at the CSIRO or other recognised testing authorities the underlay is installed and then will have the required floor finish placed over the top. It is the top flooring finish which is subject to the radiant heat testing not the substrate which incorporates the underlay. The underlay is not subject to the radiant heat in its own right. Every floor covering will vary in relation to heat tolerance however the underlay will always remain the same.

Should you require further information and clarification we suggest you contact the CSIRO directly.

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Q: After having a run in with a pedantic local council recently, I found that the BCA required tests to be made over a 200 mm concrete floor. Is theirs tested to that thickness?

The products do not need to be tested at 200mm. BCA compliance testing needs for materials to be tested at no less than 150mm. As you are aware our products have been tested at CSIRO on a 150mm slab which then automatically covers any thicker slabs. CSIRO is the highest level of testing authority in Australia and with their testing it is all regulated to conform to BCA requirements and Australian standards. The CSIRO Report should be accepted by these authorities. Please remember that BCA compliance normally refers to the construction of new buildings or anything that has been D & A approved after May 2004. Common sense should alert them to the fact that when tested on 150mm slab and it complies then 200mm slab will easily comply.

In general most apartments blocks being built around Australia have anywhere between 150-180 slab maximum and generally include the addition of varying ceiling additions. In most cases these days' apartments are also constructed to incorporate a void layer between the upper ceiling and the floor below and sometimes they use rubber resilient mounts to which the plasterboard ceilings are then attached. The addition of this to a concrete slab generally adds another 3 - 4 acoustic points. The report you have clearly indicates that the 3mm product you are providing complies without the help of these additional ceiling systems.

It is very rare to have a 200mm slab specified for new construction of apartments these days. It may be the case that they are talking about an older building which is undergoing a refurbishment or a private building where the architect has specifically specified a thicker slab for his client.

Please be aware that the councils do have the authority to request something better than BCA compliance and if this is the case your client should then be referred to a Registered Acoustic Engineer for further advice. Bridgestone can provide a range of thicker underlays which can be utilised once the Acoustic engineer has come up with the correct product for specification. **It needs to be emphasised that Bridgestone cannot offer acoustic solutions for this purpose.**

Do not try and handle anything outside of normal compliance specifications as there is too much danger of getting caught up in the legal aspects of this. By all means if you have received a specification which has already a product nominated you can always check to see if we have an alternative product which is suitable

Q: I had an architect call me the other day saying that the council he was involved with about a certain project were also insisting on "Airborne" results. Do you come across this often or is it a council just being pedantic?

This is a common question. There are two (2) types Impact (Ln,w) sound which relates to our testing and product. Airborne sound (Rw,) which does not relate to our product. They are not to be confused as both types of noise are measured in totally different ways and need different products to combat them.

The AcoustaLay products we provide are solely manufactured to combat impact noises such as footfall, dragging of furniture, and low frequency noises resonating from sub-woofers and alike.

Impact sound rating is referred to as an Lnw rating. When reading an architectural specification, this is all you need to concern yourself with. The AcoustaLay will offer minor assistance to the airborne noise in the overall finished construction however is not to be relied upon for this purpose as the underlays are porous and allow high frequency noises to pass through the product. AcoustaLay should not be sold or marketed as an airborne product as there can be no testing results provided to cover this type of application using our underlays.



ACOUSTALAY

Airborne noise relates to high frequency noises such as people talking and telephones, music playing, door bells and commonly, other products are used within the construction of the building to treat this. The airborne rating is something quite separate from impact noise and as previously advised, should not be confused. Generally when reading a proper specification, these two areas are listed as separate requirements. $Ln_1 w$ rating – impact noise reduction. Rw_1 rating – airborne noise reduction. The Acoustalay is manufactured to suppress impact noises only. Other products such as foam, Insulwool and pink batts type products are used in the wall and ceiling cavities to combat the airborne noise and high frequency issues. As each building or construction is completely independent, it would be hard to give an exact description of how much reduction the acoustic underlay would contribute to the reduction of the airborne noise.



ACOUSTALAY

TABLE OF ADHESIVES THAT ARE COMPATIBLE WHEN INSTALLING TO CONCRETE AND TIMBER SUBSTRATES

This table is to be used as a guide only. It is the responsibility of the contractor/builder/end user to check with their preferred adhesive supplier for suitability of purpose with the selected finished flooring application.

MANUFACTURER	ADHESIVE
Kiesel	Okamul PU
Nexus	560
Roberts	555
Polymer	8000



ACOUSTALAY

TECHNICAL REPORT 1

2010

Field Impact Isolation Class Properties of Underlays

The following information has been compiled from data obtained from testing carried out at Acoustic Logic Consultancy and the CSIRO. The information shows the Field Impact Isolation Class (FIIC) of **Airstep** Carpet Underlays laid on a **concrete floor without a suspended ceiling**.

UNDERLAY TYPE – AIRSTEP	GRADE	FIELD IMPACT ISOLATION CLASS
Airstep Premier Pad – 14.5 mm	Luxury	79
Airstep Gold – 8.5 mm	Premium	78
Airstep Prime, Firecheck – 7.6 mm	Heavy Duty	78
Airstep Cushion Bond 6000 – 6.0 mm	Commercial	77
Airstep Platinum – 9.0 mm	Supreme	77
Airstep Acoustalay – 3.00 mm with carpet	Commercial	77
Airstep Sensi Slab – 4.7 mm	Commercial	75
Airstep Aero Cushion – 7.0 mm	Commercial	75
Airstep Black Comfort – 7.5 mm	Economy	74
Airstep Resist – 5.1 mm	Commercial	74
Airstep Cushion Pad – 9.0 mm	Commercial	73
Airstep Acoustalay – 3.00 mm with 8 mm laminate flooring	Commercial	52
Untreated Concrete Slab		38

Sydney City Council requires an FIIC rating of 50 to provide an acceptable level of impact isolation between apartments

Please Note: with the installation of a suspended ceiling, the above figures would improve by approximately 10%.

Will Verschaeren
General Manager

James Ross
Production Engineer

- The above figures are subject to change without notice.

AIRSTEP CARPET UNDERLAY – THAT'S CONFIDENCE!



AWTA PRODUCT TESTING

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TEST REPORT

CLIENT : BRIDGESTONE AUSTRALIA LIMITED
20 SOUTH GIPPSLAND HWY
DANDENONG VIC 3175

TEST NUMBER : 7-570248-NV
ISSUE DATE : 08/12/2009
PRINT DATE : 09/12/2009

SAMPLE DESCRIPTION Vinyl flooring adhered to "Acoustalay" adhered to cement
sheeting
A: PU - Okamul PU Comp. B
B: Okatmos Star 100

Environmental Temperature Cycling

Sample	A	B
Visual assessment		
Separation between layers	Nil	Nil
Separation at join on vinyl flooring	Nil	Yes
Delamination from rubber underlay	Nil	Nil
Warping of vinyl flooring	Nil	Nil
Warping of rubber underlay	Nil	Yes
Blistering of vinyl flooring	Nil	Nil

Dimensional change of rubber underlay
Length -0.4%
Width +0.7%

Temperature cycled between -10+/-2degC and 55+/-2degC and
98+/-2% Relative Humidity for 48 hours
Two hours at each temperature value with a one hour ramp
time between temperatures

Bond Strength

Sample A	Original state	*Temperature cycled
Specimen 1	**	**
2	**	**
3	**	**
4	**	**
5	**	**
Mean	**	**

Sample B	Original state	*Temperature cycled
Specimen: 1	177	119 N/101mm
2	137	68.7
3	114	61.1
4	106	73.1
5	128	83.7
Mean	133	85.0 N/101mm

*Temperature cycled between -10+/-2degC and 55+/-2degC and 98+/-2% relative
humidity for 48 hours

** Unable to initiate separation

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Samples and their identifying descriptions have been provided by the client unless otherwise stated.
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AWTA Ltd.

APPROVED SIGNATORY

NICHOLA A. MCKENNA B.Sc (Hons)
MANAGING DIRECTOR



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RBN 4° 57' 15" 230

Result:

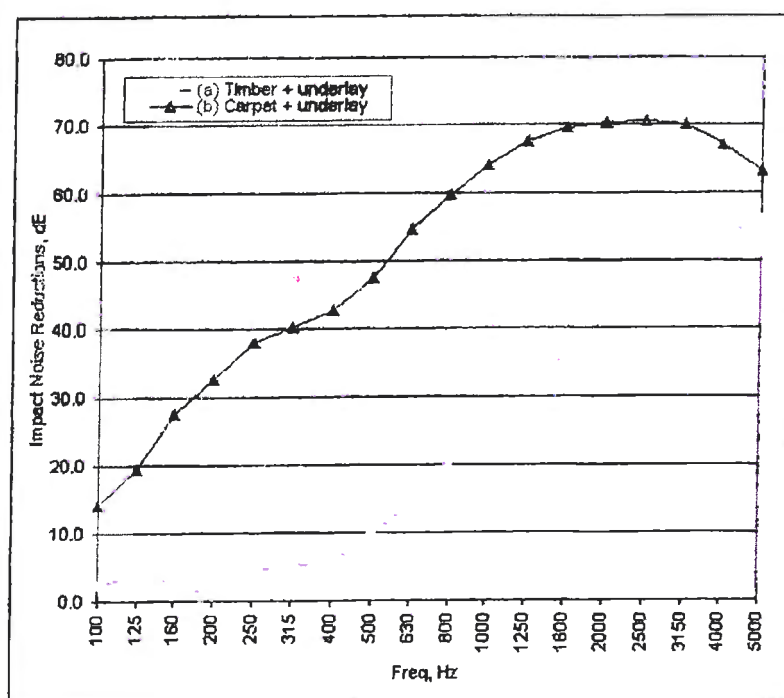
The reduction of impact sound pressure level (ΔL), (i.e. the improvement in impact sound insulation) is given by the simple difference between the sound pressure level (L_p) measured in the bare floor, and the (L_i) measured for the test floors, corrected where appropriate for background levels. The impact isolation class (IIC) on the 150mm thick test slab, as defined in ASTM E989-89, the weighted reduction in impact sound pressure level ΔL_w , and ΔL_{in} , as defined in AS ISO 717.2-2004, have also been determined for the test floors.

Table 4 presents the reduction of impact sound pressure level (ΔL) calculated for each measured third octave frequency band. The last five rows of the tables give ΔL_w , ΔL_{in} , IIC, $L_{n,w}$ and C_i respectively for the test floors.

The bare floor yielded IIC 26, $L_{n,w}$ 81 and C_i -12.

Table 4. Reduction of impact sound pressure level (ΔL) for the test floors.

Freq (Hz)	Reduction in Impact Sound Pressure Level, ΔL (dB)	
	(a) Timber + underlay	(b) Carpet + underlay
100	2.1	14.1
125	3.6	19.6
160	2.6	27.6
200	0.7	32.8
250	4.1	38.0
315	5.3	40.3
400	5.6	42.6
500	9.5	47.5
630	14.1	54.6
800	20.1	59.7
1000	24.8	64.0
1250	31.3	67.6
1600	36.2	69.5
2000	41.3	70.2
2500	47.0	70.4
3150	51.7	70.0
4000	53.5	67.1
5000	55.9	63.1
ΔL_w	19	43
ΔL_{in}	8	28
IIC	52	77
$L_{n,w}$	59	30
C_i	-1	1



[Signature] 7/12/2009
Officer conducting measurement

[Signature]
Checked by

Technical Data Sheet



Polyurethane resin adhesive Okamul PU

- solvent-free
- multi-purpose adhesive
- easy to spread
- for interior and exterior applications
- suitable over floor heating systems
- suitable for fork lift traffic

Properties and usage

Solvent-free, very low emission, two-component, polyurethane resin adhesive for the installation of rubber coverings, outdoor and other coverings. **Okamul PU** has superior bonding properties and is tough, hard as well as humidity and weather resistant after it has fully hardened.

Specifications

Color	beige/yellow
Application	interior and exterior
Suitable for chair castors	suitable
(according DIN EN 12 529)	
Coverage	trowel A1 approx. 322 - 368 sq.ft./US gal. (350 - 400 g/m ²) trowel B1 approx. 215 - 258 sq.ft./US gal. (500 - 600 g/m ²) trowel B3 approx. 99 - 143 sq.ft./US gal. (900 - 1300 g/m ²)
Minimum substrate temperature	63 °F (+17 °C)
Pot life*	approx. 30 minutes
Ventilating time	install immediately
Ready for load bearing*	after approx. 24 hours
Final cure*	after approx. 5 days
Floor heating systems	suitable
Marked according to GefStoffV regulations	Component A: no entry Component B: harmful
GISCODE	RU 1 according to TRGS 610
EMICODE	EC 1 according to GEV
Shelf life	store in dry area for up to 12 months in unopened container Preferred storage temperature: +10°C to +20°C** Please note EC safety data sheet
*	At 68 °F (+20 °C) and 65% relative humidity. Higher temperature and low humidity decreases, lower temperature and high humidity increases this value respectively.
**	Stored Okamul PU exposed to frequent temperature changes can form a hard residue. Warm up material to 122 - 140 °F (+50 °C - +60 °C) for up to 12 hours to resume a smooth texture. Do not use hardened component B.

Substrate preparation

The substrate must comply with VOB Part C, DIN 18 365 as well as with all technical requirements and must be ready for installation. The surface must be sound and clean. Remove dirt, paint, oil, grease wax and other contamination which might act as a bondbreaker. Grind and prime calcium sulfate screed according to data sheet BEB.