

Regupol®

# Impact Sound Insulation

## Versatile Resilient Underlays for Every Floor Covering

Regupol® Impact Sound Insulation has been providing undisturbed living and working environments for a long time – Regupol® Impact Sound Insulation from BSW is far more effective than stated in the standard. For many years, Regupol® has been the preferred material for countless project engineers, acoustic engineers, providers and architects.

Whether new buildings or refurbishments, whether in commercial or privately used buildings – Regupol® Impact Sound Insulation is easy to install, offers a low structural height (2–6 mm), is resilient and durable. It does not matter which final layer is installed on top of Regupol® Impact Insulation Mats. Sounds at the surface in the frequency range between 500–2,000 Hz are reduced, for example under laminate by 25%.

Regupol® Impact Sound Insulation increases walking and living comfort and reduces sound transmissions and premature wear to the floor covering by shock and impact. When used under soft floor covering such as PVC or carpet, Regupol® Impact Sound Insulation improves the resilience of floor covering and helps to prevent areal soling in areas subject to heavy use the formation of worn pathways. This makes Regupol® Impact Sound Insulation an ideal versatile combination of both impact sound and thermal insulation, whilst increasing the walking comfort. Regupol® Impact Sound Insulation protects both floor covering and sub-base.

### Custom-Specific Development and Production

Customised individual production, custom-designed finishing, and demand-gear storage ensure short delivery periods as well as flexibility for special solutions. Special qualities are also possible for corresponding order volumes. The Regupol® Impact Sound Insulation Mats presented here are only a small selection from the wide range of possibilities from BSW to find exactly the solution for you. Numerous material combinations and delivery formats can be implemented in direct one-on-one consultations with the customer.

### The Benefits

- easy to install, easy to cut
- low structural height
- excellent walking comfort
- resistant to castors according to DIN 68131
- suitable for underfloor heating
- thermal insulation properties
- permanently elastic
- resistant to aging
- practical dimensions
- very low in emissions
- water-vapour-resistant, breathable
- completely recyclable
- cleaning-resistant: cleaning of textile floor covering does not affect the impact sound insulation layer
- also suitable as non-slip underlay for loose carpets

## Technical Data

Regupol®	K225	4515	3912	8010
Material Base	cork/rubber/PUR	cork/PUR	PUR	rubber/PUR
Delivery Format	rolls			
Length	any desired			
Thickness	2–6 mm	3–6 mm	3–6 mm	3–6 mm
Specific Weight	approx. 470 kg/m <sup>3</sup>	approx. 420 kg/m <sup>3</sup>	approx. 370 kg/m <sup>3</sup>	approx. 700 kg/m <sup>3</sup>
Tensile Strength	approx. 0.6 N/mm <sup>2</sup>	approx. 0.7 N/mm <sup>2</sup>	approx. 0.4 N/mm <sup>2</sup>	approx. 0.6 N/mm <sup>2</sup>
Elongation at Break	approx. 18%	approx. 25%	approx. 55%	approx. 55%
Temperature Stability	approx. –40 to +110 °C			
Thermal Conductivity	approx. 0.12 W/mK			
Thermal Resistance (DIN 52612)	3 mm: $1/\lambda = 0.025 \text{ m}^2\text{K/W}$ ; 5 mm: $1/\lambda = 0.041 \text{ m}^2\text{K/W}$			
Reaction to Fire according to DIN 4102	B2, B1 (special finish possible)		B2	B2
Impact Sound Insulation	3 mm: approx. 18 dB, 5 mm: approx. 20 dB together with 2 mm PVC (up to approx. 24 dB with corresponding material thickness and choice of suitable floor covering)			

## Regupol® K225

Regupol® K225 consists of PUR-bonded rubber granules and cork elements. Regupol® K225 is castor-proof according to DIN 6813 and suitable for underfloor heating systems. While maintaining its original thickness, K 225 will remain permanently elastic and non-perishable for decades. Regupol® K225 can be 100% recycled. Regupol® K225 is suitable for all conventional subfloor and floor covering. Its special consistency allows a minimum thickness of only 2 mm.



## Regupol® 4515

Regupol® 4515 was mainly developed for laying under PVC. Due to its special material composition it prevents plasticiser migration. Regupol® 4515 consists of PUR-bonded cork and PUR foam. This means there is no need to use filling as a boundary to the subfloor. Other characteristics are similar to those of Regupol® K225.



## Regupol® 3912

Regupol® 3912 consists of PUR-bonded PUR foam. Its relative light weight and soft consistency make it suitable for installations under textile floor covering. It goes without saying that Regupol® 3912 can also be installed under all other floor covering. Regupol® 3912 is durable and age-resistant, castor-proof and suitable for underfloor heating.



## Regupol® 8010

Regupol® 8010 consists of PUR-bonded rubber granules only. Regupol® 8010 has proven highly effective under laminate reducing the sound indoors. Regupol® 8010 is durable and age-resistant, castor-proof and suitable for underfloor heating.



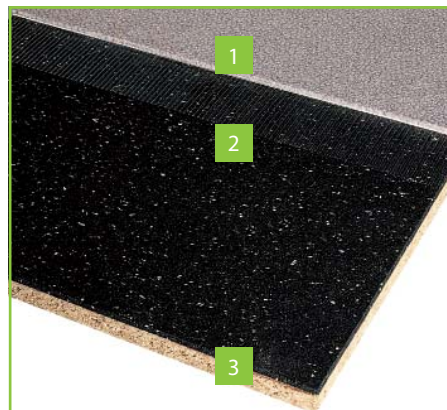
## Floor Composition with Regupol® Impact Sound Insulation

Screed/Parquet, Laminate, Real Wood Flooring



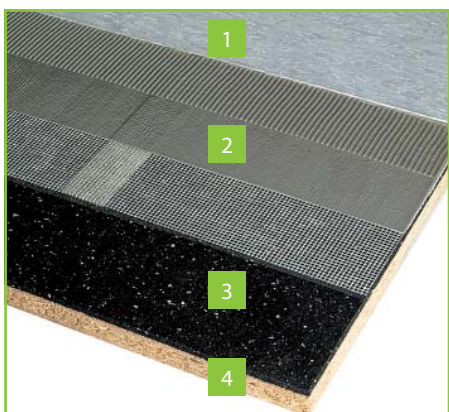
- 1 Finished parquet or laminate
- 2 Regupol® Impact Sound Insulation Mat
- 3 Screed or other subfloor

Screed/Carpet



- 1 Carpet
- 2 Regupol® Impact Sound Insulation Mat
- 3 Screed or other subfloor

Screed/PVC or CV



- 1 PVC carpet
- 2 Filler (not for Regupol® 4515)
- 3 Regupol® Impact Sound Insulation
- 4 Screed or other subfloor

Wooden Floorboard/Carpet



- 1 Carpet
- 2 Regupol® Impact Sound Insulation Mat
- 3 Layer of filler
- 4 (old) wooden floorboard

Regupol® Impact Sound Insulation can be easily installed with commercially available glues. It is usually placed under finished parquet or laminate. Unevenness must be levelled.



Burj Khalifa, Dubai: just one example of buildings fitted with Regupol® Impact Sound Insulation. There are high demands everywhere - Regupol® Impact Sound Insulation is always a good solution.





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## TECHNICAL TERMINOLOGY IN THE FIELD OF ACOUSTICS

**DB:** Abbreviation for the sound pressure level measurement decibel. A decibel is 1/10 of the logarithmic ratio Bel.

**Flanking:** The situation whereby sound energy is transmitted into a receiving room by a path other than the building element being considered. For example, sound bypassing a tested floor system via a wall.

**Impact Sound / Structure-Borne Sound:** Sound energy travelling through a solid object, such as footsteps through floor.

**ISO:** Abbreviation for International Standards Organisation.

**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.

**FIC:** Field Impact Isolation Class, measures impact noise on-site tested (field).

**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.

**Ln, w:** 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 Ln,w the better the performance. The 1/3 octave range used is 100 to 3150Hz.

**LnT,w:** Weighted standardised impact sound pressure level.

**Rw:** Weighted sound Reduction Index is the European single figure rating for airborne reduction through building elements. In general, the higher the Rw the better the performance. The 1/3 octave range used for calculating Rw rating is 100 to 3150 Hz.

Comparing IIC (or Ln, w) ratings for different Regupol® Impact Sound Acoustic Underlay's is not possible without knowing the test condition, as these ratings, normally conducted in the field (FIC) are for the entire system not just the Regupol® Impact Sound Acoustic Underlay.

The only meaningful comparison is by subjecting the products to the same test conditions.

IIC Rating examples:	IIC45 – below BCA requirement	IIC55 – audible
	IIC50 – clearly audible	IIC65-75 – normal inaudible

In Australia, there are two methods of rating the impact insulation of floors measured in a laboratory.

1. IIC or “impact Insulation Class” measured in accordance with American Standard E 492; or,
2. Ln,w or “weighted Normalised Impact Sound Pressure Level” measured in accordance with International standards ISO 140. A “spectrum adaption term” denoted as C1 may also be applied to de-rate floor performance at low frequencies. The resulting measurement term is denoted as Ln,w+C1 and is proposed in the BCA.

The Methodologies for the two tests described above are similar and generally the Ln,w 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, for example, in apartment buildings.

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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.

### **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.

#### **Building Code of Australia:**

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

- “An L'nT,w+C1 not more than 62 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.”

#### **Regupol Systems – Building Code of Australia Compliance:**

Regupol (Australia) Pty Limited have shown BCA compliance with all our recommended acoustic underlay systems by completing extensive independent testing and the CSIRO (Melbourne) and the UKAS (United Kingdom) accredited laboratories as well as numerous field application by registered independent acoustic engineers.

#### **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 a 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 the City of Sydney, 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 Corporation.