

TECHNICAL DATA / SPECIFICATIONS

Cyclin® produces insulation panels that form excellent solutions for acoustic challenges and also for thermal insulation. Cyclin®Pure is sturdy and resilient cellulose sound-absorbing board with high sound-absorbing values. Cyclin®Pure has also optimal moisture-regulating properties. As a result, Cyclin®Pure contributes to a healthier indoor environment in buildings for living, working and pleasure. At the end of its use, we take the product back to reuse 100% in our own factory.*



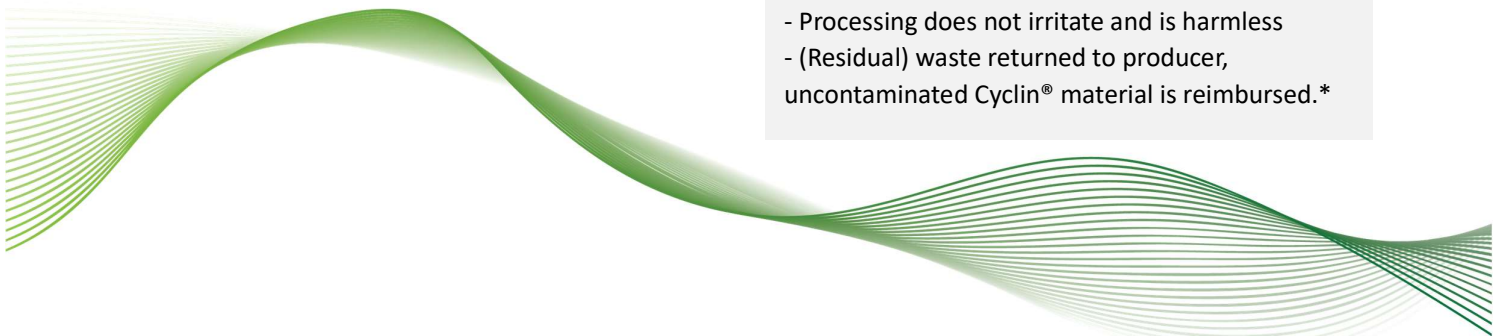
Country of production	Netherlands
Product composition	Paper, binding fibre (6%), flame retardant
Thickness range	Standard 40mm to 80mm (customization on request)
Panel size	1200mm x 600mm (customization on request)
Circularity	100%
Density	80 – 90 [kg/m ³]
Sound absorption property	Thickness >= 50mm: $\alpha_w = 1$ and >= 40mm: class A conform NEN-EN-ISO11654 Thickness >= 60mm: NRC = 1 according to ASTM C423
Thermal conductivity (lambda)	$\lambda = 0.038$ [W/mK] (Rd = 2.1 at 80 mm)
Cellulose Heat Capacity	2.11 [kJ/kg*K]
Vapor diffusion resistance	$\mu = 1.1$
Fire resistance / class	Small flame test: class E (<5% flame retardant).

Applications

- Acoustic insulation / absorption / damping
- Insulation partition walls (dry wall)
- Post-insulation for acoustics
- Vapor-open thermal post-insulation
- In timber frame walls
- In metal stud walls
- Acoustic insulation application in interior

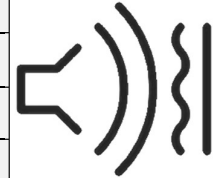
Advantages

- Production based on your dimensions*
- Regulates humidity, ensures a pleasant climate (vapour-permeable system)
- Excellent acoustic properties, reduction of sound reverberation, provides more calm and comfort in a room- CO₂ storage: 1 kg/per kg. Cyclin pure- 100% Circular
- Bio-based
- Processing does not irritate and is harmless
- (Residual) waste returned to producer, uncontaminated Cyclin® material is reimbursed.*



Cyclin®Pure as an acoustic material

Sound absorption										
thickness	Sound absorption coefficient per octave band [Hz]							α_w	α_w Class	NRC
	63	125	250	500	1000	2000	4000			
40mm	0.00	0.16	0.63	1.10	1.13	1.02	0.77	0.9	A	0.90
50mm	0.01	0.20	0.76	1.16	1.14	1.01	0.83	1.0	A	0.95
60mm	0.01	0.37	0.93	1.11	1.05	1.01	0.83	1.0	A	1.00
70mm	0.01	0.41	1.00	1.13	1.09	1.03	0.84	1.0	A	1.00



- ✓ Cyclin weighs approximately 80 -90 [kg/m²] which provides very good properties in terms of sound insulation and sound absorption.
- ✓ Sound absorption: $\alpha_w=1$ ($\alpha_w =1$ at 315Hz) at thickness ≥ 50 mm and class A (≥ 40 mm) in accordance with NEN-EN-ISO11654. NRC = 1 (≥ 60 mm) in accordance with ASTM C423
- ✓ Soundproofing; Some test results:
 - a door with 9mm MDF on both sides with 40mm Cyclin in between has an R_w of 37 dB in accordance with NEN-EN-ISO 10140-2, 2010
 - a door with 9mm MDF on both sides with 60mm Cyclin in between has an R_w of 41 dB in accordance with NEN-EN-ISO 10140-2, 2010
 - a concentration cell with a wall of 10m² equipped with 35mm Cyclin has a $D_{nT,A}$ value of 42 dB in accordance with NEN 5077. In comparison to $D_{nT,A} = 35$ dB without the use of Cyclin
 - a wall of 2.8m² with 2x12.5mm plasterboard on both sides with 50mm Cyclin in between shows a R_w of 45 dB in accordance with ISO 717-1

Cyclin®Pure as a thermal insulation material

Thermal resistance	
Thickness [mm]	Rd [m ² . K/W]
40	1.06
50	1.32
60	1.58
70	1.84

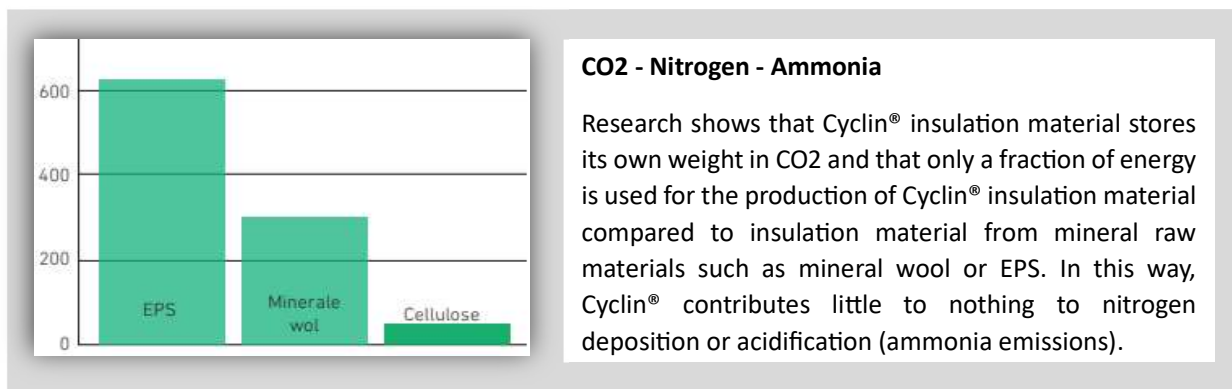
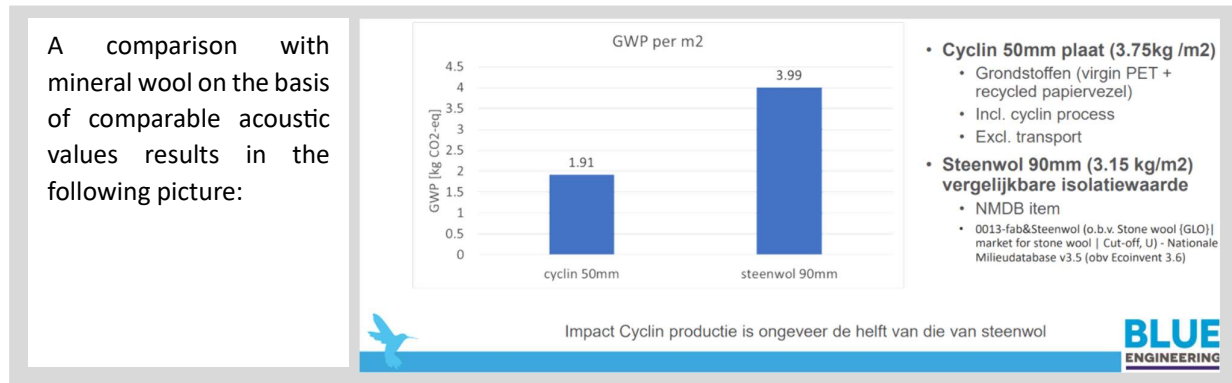
Diffusion	1.1
CO ₂ storage	1kg/kg

The good moisture regulating properties of cellulose fibers indicate that a Cyclin panel can absorb and release up to 30% moisture and thus dampen fluctuations in humidity in a room.



Cyclin® Pure and sustainability

Life Cycle Analysis Cyclin® Pure is 100% circular and gives a low GWP (Global Warming Potential) in accordance with the quick scan LCA performed, of which our route to improvement has a savings potential of 75%.



Healthy panels – sound panels

Due to the absence of toxic materials and the good properties in terms of durability, thermal insulation, noise and moisture regulation, Cyclin® contributes to a healthy and comfortable indoor environment. People in such an environment feel better, are less sick and perform better.

Circularity

Cyclin is a 100% circular material. We take back Cyclin® Pure panels and leftovers and can incorporate them 100% as raw materials in our production process without any additional processing. We ask for a deposit on pallets and we ask for the return of packing material so that we can have it recycled in a responsible manner. In this way, we do not burden our customers with waste.



Conclusion

All this makes Cyclin® one of the most sustainable and circular materials for sound insulation or thermal insulation.

Cyclin® and its "Sound Business" pricing policy

Cyclin® has its production facility in the Netherlands. In the context of "Sound Business" we charge a selling price based on a fair, and not exaggerated turnover. We believe in doing business fairly, not calculating huge discounts because that shows a structural unfairness towards the smaller customers. That too, is Sound Business in our opinion.

General recommended retail prices:

Cyclin®Pure has standard dimensions of 1200mm x 600mm with variable thicknesses. Specialized dimensions are often possible on request and at an additional cost. This way, you have hardly any cutting/residual waste on site. We take back any cutting/residual waste at the applicable raw material costs. Partly depending on the purchase volume, a further price determination will take place. Please inquire about this without obligation.

Delivery of products:

Delivery is ex works. Ordered products can be picked up by appointment at our location in Venlo between 8 am and 5 pm. In the event that the client leaves the transport to us, we will charge you with the transport invoice on the basis of the value invoiced to us plus 20% administration and handling costs. We aim to deliver within 10 working days of written order. Our terms and conditions are applicable, these are available and can be viewed via our website www.cyclin.nl



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Performance of Cyclin Puur can be read in the report 'Memorandum Acoustics' by Volantis and can be requested via Cyclin BV.

