



Antibacterial Performance / Antifungal Performance

of Vinyl Sheets, Tiles, Skirtings & Dadoes



Data below will help you to organize hygienic space as the guidance about performances of interior finishing materials.

Antibacterial property and mildew-proof property of floor covering play a supplementary role to prevent the growth of bacteria and mildew, and keep a more hygienic environment. Antibacterial agents can have a longer-lasting effect and be less affected by abrasion of walking or cleaning, as they are kneaded into the vinyl floor coverings rather than applied on the surface only.

Antibacterial & Antifungal Performances

Category	Product name	Thickness (mm)	Antibacterial criteria (Antibacterial Active Value: ≥ 2.0)			Mildew-proof (ditto: 0 or 1)
			Antibacterial active value			Mildew-proof value
			Escherichia coli	Staphylococcus Aureus	MRSA	
Vinyl sheet	HITOE GRANZA/FINE	2.0	↑	↑	↑	-
	NONWAXLEUM NW	2.0	↑	↑	↑	-
	MATURE NW	2.0	↑	↑	↑	-
	DEODORANT NS TOWARE NW	2.0	↑	↑	↑	-
	NS PLAIN NW	2.0	↑	↑	↑	-
	SF FLOOR NW	2.8	↑	↑	↑	0
	HOSPILEUM NW	2.0	↑	↑	↑	0
	CARESAFE NW	4.5	↑	↑	↑	0
	ARENA FIT	4.5	↑	↑	↑	-
	FLOORLEUM PLAIN NW/MARBLE NW	2.0/2.5	↑	↑	↑	-
	FLOORLEUM PREMIER NW SERIES *1	2.0	↑	↑	↑	-
	OPELEUM	2.0	↑	↑	↑	0
	CHEMICAL-RESISTANT SUPER K-SHEET NW	2.0	↑	↑	↑	-
	CHEMICAL-RESISTANT SUPER K-SHEET EXCELLA NW	2.0	2.0 or over	2.0 or over	2.0 or over	-
	NS AQUATREAD	2.0	↑	↑	↑	0
	NS FLATY	2.0	↑	↑	↑	-
	BATHNA ARTI	2.8	↑	↑	↑	0
	BATHNA FLORE	3.5	↑	↑	↑	0
	BATHNA REAL DESIGN	3.5	↑	↑	↑	0
	LAVANA	2.5	↑	↑	↑	0
CF SHEET-H	1.8	↑	↑	↑	0	
CF SHEET-P NW	2.3	↑	↑	↑	0	
CF SHEET-SD	3.5	↑	↑	↑	0	
Vinyl tile	LOOSELAY MASTER NW-EX	5.0	↑	↑	↑	0
	TOUGHTEC TILE	3.0	↑	↑	↑	-
Skirting & wainscot	ANTI-SOILING & BACTERIAL WIDE SKIRTING	2.0	↑	↑	↑	-
	WAVE HABAKI (skirting)	2.0	↑	↑	↑	-
	TOLI STAIN-RESISTANT DEODORANT KOSHIKABE (dado) SHEET	1.0	↑	↑	↑	0
Other	LINOLUEM	2.5	↑	↑	↑	-

*1 series consists of FLOOLEUM SOILUD NW, LATTICE NW, FLAKE NW, NATTY NW.

Testing Lab.: KAKEN TEST CENTER, BOKEN QUALITY EVALUATION INSTITUTE

Antibacterial Property

[Criteria for Evaluation]

Antibacterial (if Antibacterial Active Value: ≥ 2.0)

● Guide for Evaluating the Data

When the antibacterial active value for each bacterium (Escherichia coli, Staphylococcus aureus, MRSA) is **more than 2.0**, the floor covering has sufficient antibacterial property.

● Test Method

Antibacterial Products - Test for Antibacterial Activity and Efficacy (JIS Z 2801)

Drop 1/500 liquid bouillon of Escherichia Coli and Staphylococcus Aureus on the sterilized specimen and cover with sterilized film. Preserve them at 35±1°C and 90%RH for 24 hours. Afterwards wash the bacteria and count the viable bacteria by agar plate culture method. The same testing should be also conducted for non-antibacterial specimen. Based on those results, antibacterial active value can be calculated by the following formula.

$$\text{Antibacterial Active Value} = \log B/C$$

B: Viable bacteria count on non-antibacterial specimen after 24 hours (pcs.)

C: Viable bacteria count on antibacterial specimen after 24 hours (pcs.)

! For vinyl sheet products, seam joints should be finished with antibacterial welding rods.

Mildew-proof Property

[Criteria for Evaluation]

Mildew-proof = 0 or 1 (Mildew growth is invisible to the naked eye.)

Result	Visual judgment
0	Mildew growth is invisible to the naked eye and cannot be detected under a microscope as well.
1	Mildew growth is invisible to the naked eye but can be detected under a microscope.
2	Fungal filament is visible to the naked eye, and its growth part is not more than 25% of the whole specimen.
3 to 5	Fungal filament is visible to the naked eye, and its growth part is more than 25% of the whole specimen.

● Test Method

Mildew-proof Testing: Test Method A (JIS Z 2911)

Spray mildew-mixed spore suspension to the specimen and grow mildew at 29°C and 95% RH for 4 weeks. Check the growth of fungal filament first by the naked eye, and by a stereoscopic microscope if necessary.

Note Maintenance to keep the antimicrobial performance of vinyl flooring

To maintain the antimicrobial property of the flooring, apply a low gloss type of "T-WAX (antibacterial)" or a gloss type of anti-bacterial wax "Healthcare Coat" manufactured by C x S Corporation, as a maintenance wax. The antistatic performance of Opeleum and Chemical-resistant Super K-sheet, etc. is not significantly reduced even with the application of "Healthcare Coat."

For inquiries to C x S Corporation, please contact
C x S sales rep.....TEL 045-640-2280



Antibacterial Performance / Bacteriostatic Performance

of Carpet Tiles, Curtain Fabrics & Wall Coverings

Data below will help you to organize hygienic space as the guidance about performances of interior finishing materials.

Antibacterial & bacteriostatic properties of floor covering play a supplementary role to prevent the growth of bacteria, and keep a more hygienic environment. We have bacteriostatic carpet tiles and curtain fabrics which conforms to SEK standards, also a lot of antibacterial wall coverings which conforms to 'Performance requirement for antibacterial wall coverings' prescribed by the Wall Covering Association.



Carpet Tiles

GA-100FH(made-to-order) and GA-8900 are equipped with bacteriostatic property as shown in the test result chart.

Bacteriostatic property Testing (GA-8900)

Mandatory Bacteria for test	Antibacterial Active Value 'A'	Multiplied Value 'F'	Criteria for bacteriostatic Product: A>F
Staphylococcus Aureus	3.7	2.7	PASS
Pneumobacillus	3.8	3.1	PASS
MRSA	4.0	2.4	PASS

*Testing laboratory: Nissenken Quality Evaluation Center *Prescribed washing instruction: 5 times *Condition of Testing: F \geq 1.0(viable bacteria count)

Safety Testing

	Testing Item	Measured Value	SEK Standard
Antibacterial Agent	Acute Oral Toxicity (LD50 value)	More than 2,000mg/kg (mouse)	More than 2,000mg/kg
	Mutagenicity	Negative	Negative
	Skin Irritancy	P.I.I value=0.5	P.I.I value < 2.00
	Skin Sensitization	Negative	Negative
Product	Skin patch	No primary irritant observed	Safeness

*Testing Lab.: Japan Food Research Laboratories, LIFE SCIENCE LABORATORIES, LTD., etc.



Wall Coverings

Power 1000 Antibacterial Basic & Wood Deco are equipped with antibacterial property.

Antibacterial Test Viable bacteria count is observed below the requirement of 0.63.

Tested Products	Bacteria for test	Antibacterial test result		
		on inoculation	24 hours after inoculation	
Power 1000 Antibacterial Basic	Escherichia Coli	2.1 \times 10 ⁴	Antibacterial processed	<0.63
			Without processing	6.8 \times 10 ⁵
	Staphylococcus Aureus	1.9 \times 10 ⁴	Antibacterial processed	<0.63
			Without processing	5.7 \times 10 ⁴
Wood Deco	Escherichia Coli	1.2 \times 10 ⁴	Antibacterial processed	<0.63
			Without processing	6.2 \times 10 ⁵
	Staphylococcus Aureus	1.6 \times 10 ⁴	Antibacterial processed	<0.63
			Without processing	5.6 \times 10 ⁴

● Test Method

'Required antibacterial performance on Wallcoverings' prescribed by Wallcovering Association.

Notes on use:

- Antibacterial processed products will inhibit multiplication of Escherichia Coli and Staphylococcus Aureus, though cannot control direct infection.
- The performance will be affected if the surface is covered with dirt.

About SEK Mark



Antimicrobial Finished Product

Bacteriostatic-processed mark

SEK Mark is the certificate only for the products that can meet the requirements of Japan Textile Evaluation Technology Council. The certified products are designed for hospital and healthcare segments (special purpose), and they also need to pass the testing of antibacterial property to MRSA. The criteria of SEK Mark requires the strict standards of bacteriostatic property and effect control on human bodies.



Antimicrobial Finished Product