



Slip Resistance



of Vinyl Sheets, Tiles & Carpet Tiles



Use below data as a performance index for creating space that takes into consideration the fall prevention.

Accident (slip and fall) is more likely to occur on wet or dusty floor where it is more slippery than normal dry and clean condition. It may also occur when wearing slippery footwear. For the prevention of fall accidents, it's recommended to select the flooring of appropriate slip resistance according to the place and its use.

Slip Resistance of Floorings (C.S.R. value)

Category		Product name	Water + Dust (smaller)	← The bigger, the less slippery → (bigger)	Dry surface	Evaluated rank
Vinyl sheet		TOLI NS STEP 800	0.64		0.73	A
		NS REAL DESIGN NW (4300series)	0.54		0.82	A
		NS AQUATREAD	0.55		0.81	A
		BATHNA FLORE	0.53		0.86	A
		NS PLAIN NW	0.52		0.83	A
		NS SHEET NS800	0.51		0.75	A
		NS REALDESIGN NW (4200series)	0.51		0.78	A
		BATHNA REALDESIGN	0.51		0.81	A
		BATHNA ARTI	0.51		0.82	A
		NS FLATY	0.50		0.71	A
		LAVANA	0.50		0.85	A
		DEODORAMT NS TOWARE NW	0.48		0.74	A
		CHEMICAL-RESISTANT SUPER K SHEET EXCELLA NW	0.49		0.75	B
		CHEMICAL-RESISTANT SUPER K SHEET NW	0.52		0.82	B
		CARESAFE NW	0.47		0.71	B
		SF FLOOR NW (TOH: in emboss length direction)	0.47		0.73	B
		HOSPILEUM NW (TOH: in emboss length direction)	0.47		0.73	B
		HOSPILEUM NW	0.47		0.76	B
		OPELEUM	0.45		1.02	B
		FLOORLEUM PLAIN/ MARBLE NW	0.44		0.69	B
		SF FLOOR 3.5mm (made to order)	0.44		0.75	B
		SF FLOOR NW	0.44		0.76	B
		SF FLOOR NW (TOH: in cross-emboss direction)	0.43		0.68	B
		HOSPILEUM NW (TOH: in cross-emboss direction)	0.43		0.68	B
		NONWAXLEUM NW (TS7000's)	0.43		0.79	B
		NEW STANLOAD	0.43		0.73	B
		MATURE NW	0.42		0.67	B
		FLOORLEUM PREMIER NW series*1	0.42		0.69	B
		NONWAXLEUM NW (TS5000's)	0.42		0.74	B
		HITOE FINE	0.41		0.66	B
		HITOE GRANZA	0.40		0.62	B
Vinyl tile		ROYALSTONE NONS	0.46		0.66	A
		PIESTA	0.47		0.78	B
		TOUGHTTEC TILE	0.48		0.70	B
		LOOSELAY MASTER NW-EX	0.46		0.78	B
		E-CLEAN NW-EX	0.43		0.84	B
		ROYAL WOOD	0.43		0.77	B
		MATICO V	0.43		0.70	B
		LOOSELAY 40 NW-EX	0.40		0.73	B
		FASOL PLUS	0.40		0.74	B
		LOOSELAY 50 NW-EX	0.40		0.69	B
Carpet tile		DC-1100	0.61		0.74	A
		GA-100 + Underlay Sheet for Carpet Tiles	0.59		0.80	A
		GA-100	0.56		0.83	A
		GA-8900 + Underlay Sheet for Carpet Tiles	0.54		0.63	A
		GA-8900	0.53		0.63	A
		Coated floor (flat-surface type)	0.44		1.06	B
Other ordinary products		Cork tile	0.44		0.65	B
		Linoleum	0.43		0.69	B
		Wood flooring	0.38		0.80	C
		Ceramic tile (gloss-surfaced)	0.30		0.96	C

*1: series consists of FLOORLEUM SOILD NW, LATTICE NW, FLAKE NW, NATTY NW.

The specimens of these data are of unused floor coverings. Though some products are not under the NS ranges, they also have good result. But they cannot keep their performance, depending on how they are used which affect the changes of the surface. They may lose slip-resistant performance due to surface change in certain situation. When slip resistance is required, slip resistant products (NS sheet) are highly recommended.

*Please refer to separate data for C.S.R.・B. value if you need slip resistance value by barefoot.

[Criteria for Evaluation] "A" rank is evaluated as slip-resistant floor in TOLI

Rank	Test Result (C.S.R. Value)	Guide for uses
A	≥ 0.45 / Wet + Dusty	Kitchens, restrooms, etc., which floor often has water on surface.
B	≥ 0.40 / Wet + Dusty	The ordinary walkway, which floor seldom has water on surface.
C	<0.40 /Dry or Wet + Dusty	Not recommended for the area where slip-resistance is required.

Print direction:
SF Floor NW / HOSPILEUM NW



● Guide for Evaluating the Data

Judged in condition of both 'Dry' and 'Wet + Dusty'. The **bigger the number of CSR value (the index of slip resistance)** is, the less slippery the floor is. If the number of 'Dry' and 'Wet + Dusty' is close to each other, such floor can also contribute to slip resistance.



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防滑性

● Test Method

C.S.R. value is measured according to JIS A1454 (Slip Test)

Maximum C.S.R. value (Coefficient of Slip Resistance) of testing flooring is measured by rubber board of 56cm² bottom area and vertically loaded with 785N, by pulling it 18 degrees upward with 785N/sec tensile strength.

1. Constant speed motor
2. Decelerator
3. Wire
4. Tensile speed regulator
5. Rubber board
6. Test piece



Slip resistance test by barefoot (C.S.R.·B. value)

C.S.R.·B. value of 0.7 or over is reassuring floor level.

Category	Product name	Thickness (mm)	0.3% soapy water	Slippery										Slip-resistant					Evaluation
				←	1	2	3	4	5	→	water								
Vinyl sheet	BATHNA FLORE	3.5	0.96													1.22	○		
	BATHNA REAL DESIGN (BNR3200-3400)	3.5	0.86													1.17	○		
	BATHNA ARTI	2.8	0.84													1.11	○		
	NS SHEET NS550 GUARDENT	2.5	0.99													1.03	○		
	BATHNA REAL DESIGN (BNR3100)	3.5	0.71													0.93	○		
	Ordinary vinyl sheet	2.0	0.63													0.74	—		
Ordinary others	Ceramic tiles	—	1.19													1.19	○		
	FRP floor of modular bath	—	0.85													1.02	○		

[Criteria for Evaluation] ○ represents reassuring floor with the C.S.R.·B. value of **0.7 or more** on 0.3% soapy water.

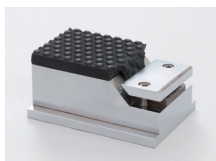
● Guide for Evaluating the Data

According to the test result in actual bathroom, it can be ranked as safety floor when the C.S.R.·B. value is **0.7 or more**.

● Test Method

C.S.R.·B value Assumed test of barefoot slip resistance

Pull an uneven rubber piece (refer to photo) with 56 cm² bottom area and the vertical load of 785N, 18 degrees upward with 785N/sec tensile strength. C.S.R.·B. value is calculated by the total of P-max and P-min (refer to Figure 1) divided by vertical load (785N). The bigger C.S.R.·B. value represents the better slip resistance.



C.S.R.·B. Value = P-max(N) + P-min(N) / vertical load (785N)

