



Antistatic property



of Vinyl Sheets, Tiles & Carpet Tiles



Use below data as a performance index to prevent malfunctioning of electronic equipment from human's static.

As indoor air is controlled better now, flooring materials ranked C or better are mostly sufficient as the flooring at hospitals, welfare facilities for old people and residence as well. In order to prevent malfunctioning of inspection devices, 'rank' and 'guide for uses' shall be referred to for floor selection.

The flooring with less resistivity has better property to discharge electricity.

Category	Product name	Thickness (mm)	Surface resistivity (Ω)	Volume resistivity (Ω)	Static Charge to person (kV)	Evaluation		
Vinyl sheet	EARTHLEUM	2.0	9.0×10⁴	6.2×10⁴	0.1	A		
	ANTISTATIC FLOORLEUM	2.0	3.4×10⁸	2.7×10⁷	0.5	B		
	CHEMICAL-RESISTANT SUPER K SHEET NW	2.0	2.6×10⁹	3.8×10⁸	0.3	B		
	OPELEUM	2.0	2.0×10¹⁰	2.8×10⁸	0.6	B		
	CHEMICAL-RESISTANT SUPER K SHEET EXCELLA NW	2.0	6.5×10⁹	2.6×10⁹	0.5	B		
	NEW STANLOAD	2.0	4.4×10¹⁰	3.5×10⁹	0.4	B		
	CARESAFE NW	4.5	1.0×10¹⁰ or more	1.0×10¹⁰ or more	>3.0	C		
	HITOE GRANZA/FINE	2.0			>3.0	C		
	NONWAXLEUM NW	2.0			>3.0	C		
	MATURE NW	2.0			>3.0	C		
	DEODORANT NS TOWARE NW	2.0			>3.0	C		
	SF FLOOR NW	2.8			>3.0	C		
	SF FLOOR NW + Underlay Sheet	7.3			>3.0	C		
	SF FLOOR NW 3.5mm	3.5			>3.0	C		
	HOSPILEUM NW	2.0			>3.0	C		
	HOSPILEUM NW + Underlay Sheet	6.5			>3.0	C		
	FLOORLEUM Plain NW/ Mable NW	2.0			>3.0	C		
	FLOORLEUM PREMIER NW series *1	2.0			>3.0	C		
	NS800	2.5			>3.0	C		
	NS AQUATREAD	2.0			>3.0	C		
NS FLATY	2.0	>3.0			C			
Vinyl tile	LOOSELAY 40 NW-EX	4.0			5.6×10⁹	2.3×10⁹	0.2	B
	LOOSELAY MASTER NW-EX	5.0			4.9×10⁹	3.8×10⁹	0.6	B
	LOOSELAY 50 NW-EX*2	5.0			1.2×10¹⁰	3.8×10⁹	0.3	B
	E-CLEAN NW-EX	3.0			1.0×10¹⁰ or more	1.0×10¹⁰ or more	>3.0	C
	ROYAL WOOD / ROYAL STONE	3.0					>3.0	C
	TOUGHTTEC TILE	3.0	>3.0	C				
	DYNAMIC STONE	3.0	>3.0	C				
	MATICO V	2.0	>3.0	C				
	FASOL PLUS	3.0	>3.0	C				
Carpet tile	DC-1100 (DUST-CONTROL)	10.0	7.0×10 ¹⁰	2.3×10 ¹⁰			0.1	a
	GA-100 SA (Super Antistatic)	6.5	6.4×10 ⁸	2.0×10 ⁷			0.4	a
	GA-8900	6.0	1.1×10 ¹²	5.0×10 ¹⁰			0.5	a
	GA-100	6.5	5.9×10 ¹¹	1.9×10 ¹¹	0.6	a		
Others	Linoleum	2.5	1.0×10 ¹⁰ or more	1.0×10 ¹⁰ or more	>3.0	C		

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

*2: Excluding LOOSELAY 50 NW-EX (highly durable).

*All the testing was conducted by TOLI's in-house labs unless otherwise specified. The data shows actual test results, not guaranteed value.



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Vinyl Sheets & Tiles

[Criteria for Evaluation]

Rank	Volume resistance value	Guide for uses
A	$1 \times 10^4 \sim 1 \times 10^7 \Omega$	Conductive grade: computer control rooms, etc.
B	$1 \times 10^7 \sim 1 \times 10^{10} \Omega$	Antistatic grade: for automated offices, operating rm., inspection rm., pharm. rm., etc.
C	$1 \times 10^{10} \Omega$ or more	General grade: where generation of static electricity is not a concern

● Test method

Antistatic property test (at 23°C, 25%RH)

1. Surface resistance test (Independent test by TOLI)

As shown in Figure 1, two electrodes are placed on the test specimen (flooring material) installed on top of an insulator, and the electrical resistance between the electrodes is measured. Testing how much direct current flows between two electrodes through the flooring material.

The less resistance means the less charge of static electricity.

2. Volume resistance test (according to JIS A 1454)

With the use of the same tester as "1", check the electric resistance between two electrodes. One is placed on flooring, the other is connected to the metal plate. The **smaller the resistance** is, the less static electricity is generated.

! Vinyl floorings are designed with the emphasis on antistatic property, not on static charge to human bodies.

Antistatic property of carpet tile is tested in accordance with JIS L 4406.

● Guide for Evaluating the Data

Antistatic property of vinyl floor covering is evaluated by volume resistance value. **The less the resistance** is, the quicker the static electricity is discharged. And the more humid a room is, the more quickly the electricity is discharged.

Carpet Tiles

[Criteria for Evaluation]

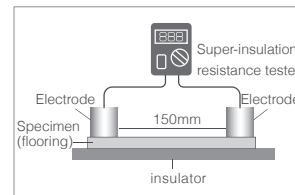
Rank	Static charge	Guide for uses
a	$\leq 1.0 \text{ kV}$	The rooms with OA equipment, or antistatic area
b	$\leq 3.0 \text{ kV}$	General area requiring little antistatic property
c	$> 3.0 \text{ kV}$	Places with low possibility to generate static

● Test method

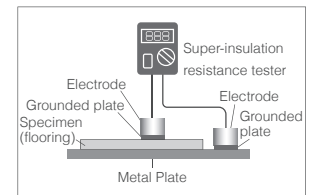
Assessment of static electricity charge—Walking test (in accordance to JIS L 1021-16)

This test is to measure static charge to human by stepping on floor specimen. **The less charge represents** the better antistatic property (at 23°C, 25% R.H./ Shoes of synthetic rubber sole.).

1. Surface resistance test



2. Volume resistance test



● Guide for Evaluating the Data

Test method to measure the static charge of a human walking.

This Japanese original test method is widely adopted in Japanese carpet industry according to JIS, and the static charge below 3 kV is usually recognized as safe level. **Note; Although vinyl floorings are installed with adhesive at job sites, a test piece in this method is loose-laid on insulation material. Thus, static charge to a human walking in actual case may show lower value than this test result.**

