

ZEONANO[®]SG101/ PTFE composites

Features

Prototype name: PL001TF-RD

The addition of a very small amount of ZEONANO[®]SG101 provides antistatic performance for highly insulating fluoropolymers.

Physical property

Antistatic properties

A small amount of 0.05 wt% achieves $10^3 \Omega \cdot \text{cm}$!

Base resin	PTFE
ZEONANO [®] SG101 content	0.05 wt%
Volume resistivity	$10^2 \sim 10^5 \Omega \cdot \text{cm}$

※Above values are not guaranteed.

Cleanliness

PL001TF-RD: composites of ZEONANO[®]SG101/ PTFE
Specimen size: 20 x 10 x 50 mm

	TOC analytical	Elemental impurity analysis
Test object	PL001TF-RD, PTFE	PL001TF-RD, PTFE
Analytical items	TOC (total organic carbon)	Elemental impurities (34 elements)
Test solution	Ultrapure water (specific resistance: $\geq 18.0 \text{ M}\Omega \cdot \text{cm}$)	3.6% hydrochloric acid (EL-UM grade)
Test conditions	Specimen immersed at 85 °C for 24 hours	Specimens immersed at room temperature for 24 h and 168 h

● Below TOC detection limit

Analytical samples	PL001TF-RD	PTFE
TOC $\mu\text{g/L}$	<100	<100

(※<0.294 $\mu\text{g/cm}^2$)

● Less than detection limit of eluted

Analytical samples	PL001TF-RD	PTFE
Analytical metal species	Metal of interest 34 elements Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Ge, In, K, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, Pd, Sb, Sn, Sr, Ta, Ti, Zn, Zr	
Analytical results	All 34 elements below the detectable limits (0.1 ppb(0.294 ng/cm²))	

Comparison of physical properties

PL001TF-RD:
composites of ZEONANO[®]SG101/ PTFE

	PL001TF-RD ※ZEONANO [®] SG101: 0.05 wt%	PTFE+CB ※CB:2 wt%	PTFE
Volume resistivity($\Omega \cdot \text{cm}$)	4.6×10^3	1.9×10^4	$> 10^{15}$
Tensile strength *	96 %	53 %	100 %
Compressive strength* 10% deformation	103 %	108 %	100 %
Flexural strength *	105 %	112 %	100 %
Elastic modulus in bend *	102 %	105 %	100 %

※Tensile strength, compressive strength, flexural strength, and flexural modulus are relative values when PTFE is 100 %.

Applications

- Equipment parts for semiconductor manufacturing

ZEON