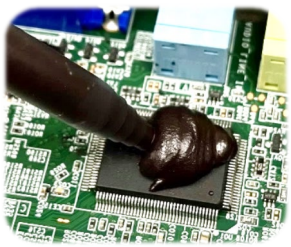
Under Development

Soft ferrite material

Urethane-based Magnetic Resin with High Thermal Conductivity



OVERVIEW

Urethane-based magnetic resins are pasty products having permeability and produced by mixing TODA KOGYO's soft ferrite powders and two-part urethane resins. They become flexible curable resin in 24 hours after mixing the two components. They are siloxane-free without concern for contact failure and adhere to various substrates. They can reduce the deterioration of magnetic properties due to magnetic flux leakage by filling the voids in the magnetic parts. Consequently, their inductance can be improved in addition to the downsizing and low profile of the modules, by using them for the sealing of wire-wound inductors and noise suppression.

FEATURES

High permeability and thermal conductivity

They show high permeability and thermal conductivity due to the high filling of soft ferrite powders and other materials.

Excellent resin flowability and high shape-following property

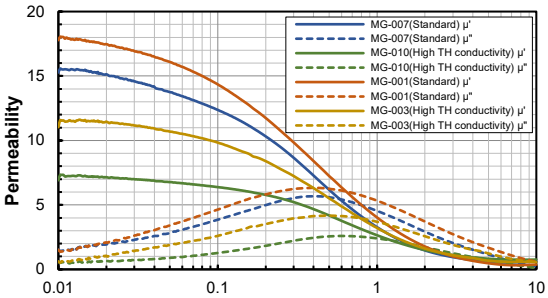
They exhibit excellent flowability and high shape-following property due to the dispersion technology.

CHARACTERISTICS

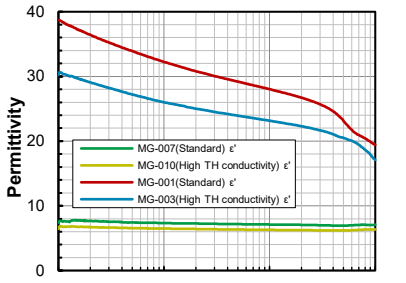
【Characteristics of typical samples】

	Item	Unit	Test methods	Ni-Zn ferrite		Mn-Zn ferrite	
				MG-007 (Standard)	MG-010 (High thermal conductivity)	MG-001 (Standard)	MG-003 (High thermal conductivity)
Before curing	Appearance (Liquid A)	–	Visual check	Black viscous liquid	Black viscous liquid	Black viscous liquid	Black viscous liquid
	Appearance (Liquid B)	–	Visual check	Black viscous liquid	Black viscous liquid	Black viscous liquid	Black viscous liquid
	Viscosity@1/s (Liquid A)	Pa・s	ASTM D2556	325	300	520	400
	Viscosity@1/s (Liquid B)	↑	↑	315	290	500	385
	Curing conditions	–	–	25℃/24h	25℃/24h	25℃/24h	25℃/24h
After curing	Permeability@100MHz	–	S-parameter method (coaxial pipe)	12.3	6.4	14.3	9.8
	Thermal conductivity	W/mK	ASTM D5470	1.6	2.0	1.6	2.0
	Hardness (Asker C)	–	JIS K7312	95	95	95	95
	Density	g/cm^3	JIS K7112	3.9	3.7	3.9	3.8
	Glass transition temperature	℃	JIS K7121	-31	-31	-31	-31
	Electrical resistance	Ω・cm	JIS K7194	≧1.0×10^7	≧1.0×10^7	≧1.0×10^7	≧1.0×10^7
	Heat-resistant time (150℃)※	hour	Tensile strength	(1)205, (2)265			
			Elongation rate	(1)195, (2)900			
			Hardness	(1)330, (2)500			
	Heat-resistant time (170℃)※	hour	Tensile strength	(1)205, (2)250			
			Elongation rate	(1)150, (2)255			
			Hardness	(1)205, (2)315			

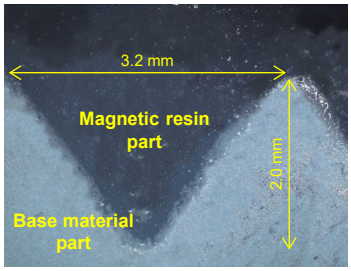
※ Time when the value becomes (1) ±30%, (2) ±50% of the initial value



【Frequency dependence of permeability】



【Frequency dependence of dielectric constant】



Capable of filling even narrow gaps due to high shape-following capability.

APPLICATIONS

- Sealing materials for wire-wound inductors
- Wireless power transfer materials
- Noise suppression materials

Manufacturer

Sanyo Chemical

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