

Under  
Development



## Soft magnetic ferrite product

# Urethane-based Magnetic Resin

### FEATURES

Urethane-based magnetic resins are pasty products 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 components, by using them for the encapsulation of wire-wound inductors and noise suppression.

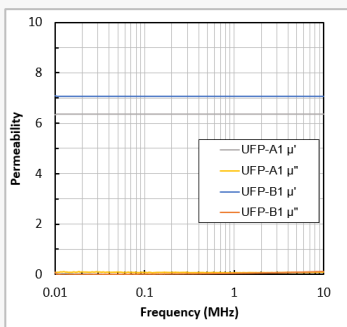
### CHARACTERISTICS

- 1 **High permeability**  
They show excellent permeability due to the high filling of soft ferrite powders.
- 2 **Superior fluidity**  
They are paste that show high fluidity as using well-dispersible soft ferrite powders.

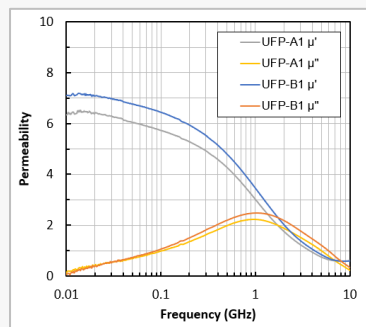
### SPECIFICATIONS

[Properties of typical sample]

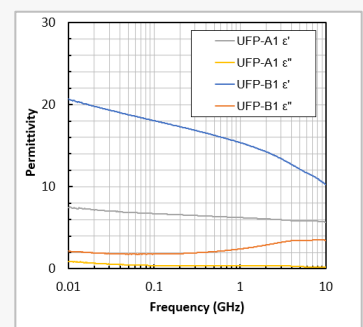
Property		Sample name	UFP-A1 (Ni-Zn ferrite type)		UFP-B1 (Mn-Zn ferrite type)	
			Part A	Part B	Part A	Part B
Before cured	Appearance		Black · High viscosity	Black · High viscosity	Black · High viscosity	Black · High viscosity
	Viscosity	1/s (m · Pas)	130,000	210,000	100,000	160,000
	[Cone & Plate, 25°C]	10/s (m · Pas)	30,000	60,000	25,000	55,000
	T I (Thixotropic index)		4.3	3.5	4.0	2.9
After cured	Curing condition		25°C-24 hours		25°C-24 hours	
	Hardness	Shore D	18		20	
	Glass-transition temperature, T <sub>g</sub>	viscoelasticity measuring (°C)	-20		-20	
	Coefficient of thermal expansion	Below T <sub>g</sub> (×10 <sup>-5</sup> /°C)	7.5		5.6	
		Above T <sub>g</sub> (×10 <sup>-5</sup> /°C)	10.3		8.1	
	Volume resistivity	JIS K-6911 at 25°C (Ω · cm)	1.3×10 <sup>9</sup>		5.6×10 <sup>8</sup>	
	Density	Water replacement method @25°C (g/cm <sup>3</sup> )	3.3		3.1	
	Thermal conductivity	heat flowmeter t2mm (W/mK)	0.9		0.9	
	Thermal resistance	Heatproof temperature (°C)	120		120	



[Frequency dependence of permeability at low-frequency]



[Frequency dependence of permeability at high-frequency]



[Frequency dependence of permittivity at high-frequency]

### APPLICATIONS

- Encapsulant for winding inductors
- Material for wireless power transfer
- Magnetic shield as noise suppression

