Introduction of HDDR compound TRP-T710C & TRP-E711C

未来を支える粒子になる。





What is TRP-T710C/E711C



TRP-T710C & TRP-E711C are

a compound of anisotropic Nd-Fe-B magnetic powder produced by HDDR processing using PPS resin.





HDDR powder

Magnetic compound

TODA

A well-balanced material with magnetic properties, heat resistance, and moldability.

A special surface treatment is applied to the HDDR magnetic powder to improve corrosion resistance.

Anisotropic Nd-Fe-B powder (HDDR)



Change in Microstructure

Demagnetization Curve



Characteristics Anisotropic NdFeB(HDDR)-PPS compounds

Binder			PPS	
Product scale			mass Product	
Filler			Anisotropic NdFeB	
Grade			TRP-T710C	TRP-E711C
Advantage			High Hcj	Br UP vs. T710C
Magnetic Properties	Br	(mT)	680	725
		(G)	6800	7250
	bHc	(kA/m)	461	453
		(Oe)	5800	5700
	iHc	(kA/m)	1217	1185
		(Oe)	15300	14900
	(BH)max	(kJ/m ³)	79.6	83.5
		(MGOe)	10.0	10.5
Physical Properties	Mold Density	(g/cm ³)	5.00	5.00
	MFR (270°C10kg)	(g/10min)	100	170
	flexural strength	(MPa)	100	70
	IZOD Impact strength	(kJ/m ²)	8	5

Demagnetization Curve





-0.11

-0.48

Thermal stability

Initial flux loss



Long-term stability



 Permanent flux loss is evaluated by magnetizing at 8640 kA/m after 1000h exposure.

GTODA

Orientation and Magnetization properties



- Orientation characteristics
- > The orientation ratio of the compound is the result measured by magnetizing at 6450 kA/m after orientation.
- > The orientation ratio of the compound is calculated in comparison to the value at 700 kA/m as 100%.



3000

Magnetic field (kA/m)

Magnetizing characteristics

1000

- > The magnetizing characteristics of the compound are the results after the processing of (i) orientation at 700 kA/m. (ii) demagnetization, and (iii) magnetization.
- > The magnetization ratio of the compound is calculated in comparison to the value at 8450 kA/m as 100%.

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Corrosion : Protection of Powder (for TRP-T710C)

[Special treatment]

Toda preformed special treatment on the magnetic powder for protection from oxygen and water.

[Evaluation method]

After the magnetic powder(1g) was put into catechol solution(50ml ,23℃/24hr), We measured the Fe ion amount eluted in the catechol solution by ICP.

	Non treatment	Surface treatment	ratio(Non treatment/ treatment)
volume(mol/L)	4.70E-04	2.56E-05	18.4





Corrosion : Effect of Skin layer

[Evaluation method] Tap water (Otake city, Hiroshima, Japan) , Immersion, 26°C, 100hr



Gate of molding as seen above

Gate of molding as seen side

Enlarged view

