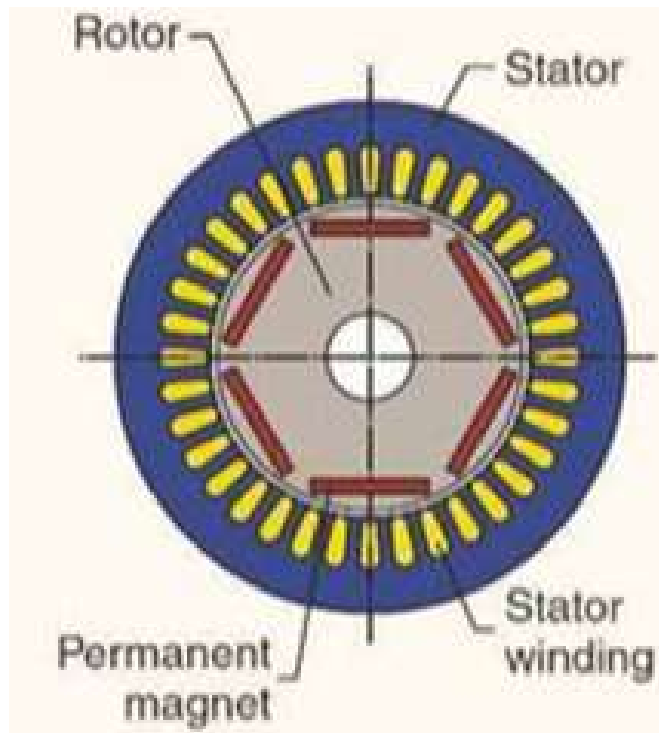


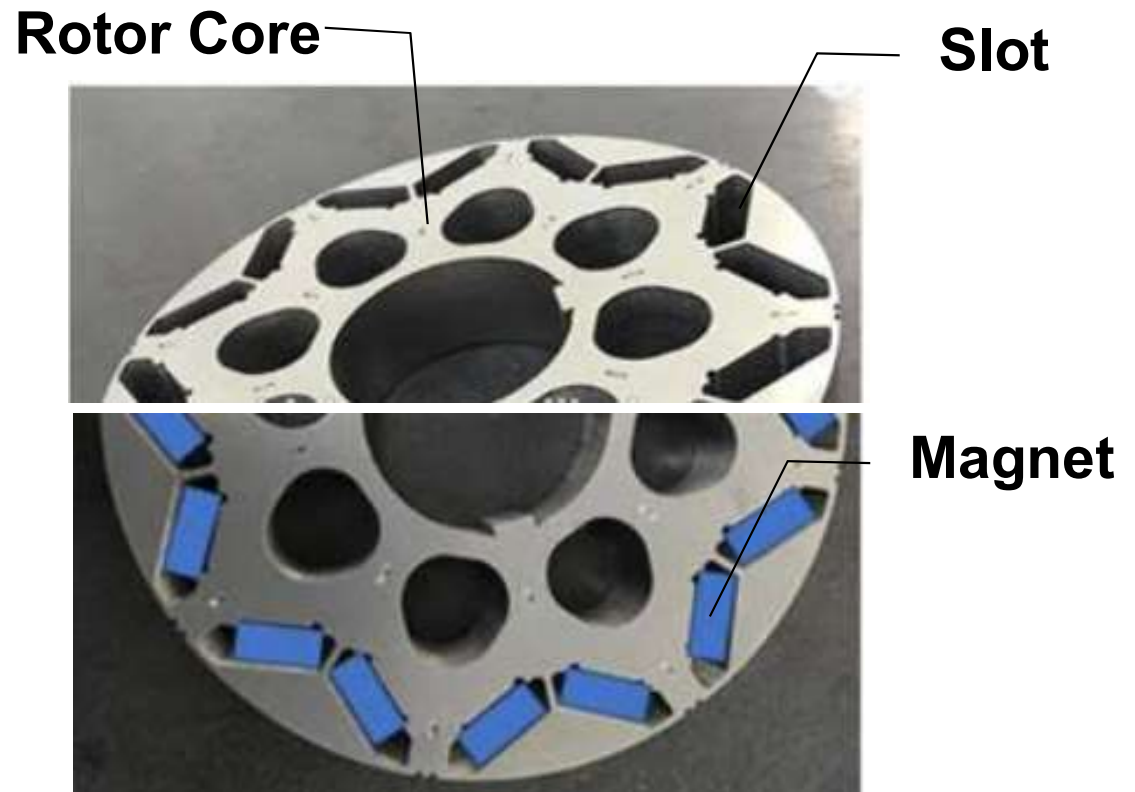
Hysol Green EMC GR30 for Electric Vehicle Rotor



Application Introduction



EV Motor Construction



- Epoxy molding compound is used to bond magnet and rotor core with transfer molding method.

Key Features of GR30

Value Proposition

- Good filling ability for gap around magnets in rotor.
- Good binding force for rotor and magnet.
- Excellent reliability performance at working temperature.
- Meet UL94 V-0 flammability rate at 1/8 inch thickness.
- Green material without Br/Sb in compliance with ROHS.
- Fast cure for high UPH.

Formulation & Properties

Product Name	GR30
Filler Sieving Cut Size(um)	100
Filler average size(um)	21
Filler Content (wt%)	80
Epoxy	EOCN
Filler Shape	Angular + Spherical
Spiral Flow (cm)	70
Gel Time (sec)	18
CTE1 (1E-6/°C)	14
CTE2 (1E-6/°C)	68
Tg (°C)	175
Specific Gravity	1.90
Water Absorption (wt%)	0.47
Flexural Strength at RT (MPa)	105
Flexural Strength at 260°C (MPa)	12
Flexural Modulus at RT (GPa)	16.2
Flexural Modulus 260°C (GPa)	0.3

Beta Site Performance(S**)

➤ Device Information

EMC	GR30
Project condition	LVM
Package Type	Rotor
Base Material	Fe
Rotor Working Speed	20,000 rpm
Working Temperature	≥150°C
Mold Model	Auto mold

Beta Site Performance(S**)

Reliability test procedure

ATF resistance test 1:

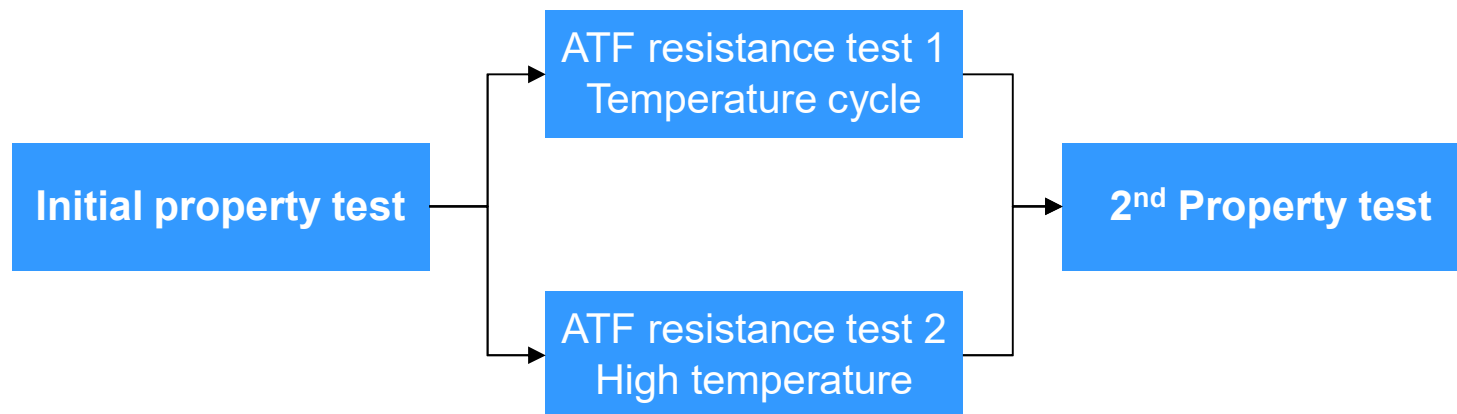
Temperature cycle condition

$25^{\circ}\text{C} \rightarrow (155^{\circ}\text{C}/t_1=40\text{hr} \rightarrow -45^{\circ}\text{C}/t_2=8\text{hr}) * 4 \text{ or } 8 \text{ cycles} \rightarrow 25^{\circ}\text{C}$

ATF resistance test 2

High temperature condition

$25^{\circ}\text{C} \rightarrow 155^{\circ}\text{C}/t=1000 \text{ or } 2000\text{hr}$ (cool down to room temperature every 200hrs to add ATF) $\rightarrow 25^{\circ}\text{C}$



ATF: Automotive Transmission Fluid

Beta Site Performance(S**)

Reliability test result

Property	ATF resistance test 1
	Property Retention after 16days
Flexural Strength @ Room temperature	100%
Flexural Modulus @ Room temperature	100%
Flexural Strength @ 260degC	100%
Flexural Modulus @ 260degC	100%

- GR30 has excellent property stability post ATF resistance test.

Molding Parameters Recommendation

➤ Molding Temperature

- Preheat temperature: 70-100 °C
- Molding temperature: 150-180 °C

➤ Molding Pressure

- Clamp force: 3-70 Ton
- Transfer pressure: 8-30 Bar

➤ Transfer Time

- Conventional mold: 15-40 s

➤ Thawing condition

- 16h~24h
@ 25 °C, 55 RT% MAX

➤ In Mold Cure Time

- ≥30s @ 175 °C
- ≥60s @ 160 °C

➤ Storing Condition

- ≤5 °C, 183 days

➤ Working Time

- 48h @ 25 °C, after thawing

Thank you!

