De e e a d A ca f F c a P e c Re

A A *1 A A H *2

Abstract:

Regarding three types of functional phenolic resins (Trisphenolmethane resin, Dicyclopentadiene type phenolic resin, Benzo[illegible] products, heat resistance, dielectric properties, transparency, and the compatibility of rubber for tires were compared with the conventional phenol resin. The glass transition temperature of Trisphenolmethane resin is 35°C higher than that of conventional resin, the dielectric constant and dielectric loss tangent of dicyclopentadiene type phenol resin are 20% lower than that of conventional resin, and thermal decomposition temperature of Benzoxazine is 54°C higher than that of conventional resin and the dielectric loss tangent of Benzoxazine is 1/5 of that of conventional resin. In addition, the developed products have excellent transparency and compatibility with rubber, which is a material for tires. These functional phenolic resins are useful for a sealing material for power device of EVs and hybrid vehicles that require high heat resistance, a circuit board material for engine control units, an additive for reinforcing automobile tires, and a material for circuit boards of 5G smartphones and communication devices of mobile phone base stations that requires low dielectric properties.

1.

200 C

[illegible]

2. [illegible]

2.1

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C . . ,

(. 4 ( )).

B . p

Fig. 8 15 % , 15 % 220 °C

40 °C 65 °C

(δ)

10). B

C

2.2 2.4

C (PP) PP 85 (85 °C), PP 95 (95 °C) PP 115 (115 °C),

2.5 B a

B 180 °C ( ) 12)

B (Fig. 9). 80

CH

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A

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5 %

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388

C, 50 C 334 C

A ,

15 C

A (a 4).

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3 5 1 5

, (5). B ,

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C

,

(C)

,

(C),