Characterization of Poly(epoxyimide) on polyimide and epoxy structure

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Poly(epoxyimide) film was prepared by reaction between hydroxyl group containing soluble copolyimide and commercial epoxy resins at 220℃ for 2hours. The poly(epoxyimide) exhibited higher thermal stability, lower dielectric constant, and low residual stress than commercial flip-chip package material. Thermal stability of poly(epoxyimide)s was 1.4 ~ 2 times higher than the commercial flip-chip package material. And thermal stability was increased by increasing crosslink density and decreasing easily decomposable bulky CF3 group. Dielectric constant of poly (epoxyimide)s was 1.1 ~ 1.3 times lower than the commercial flip-chip package material which highly desirable for microelectronic packaging industry. Dielectric constant was decreased dramatically introducing bulky CF3 group and low epoxy functionality. Residual stress, slope in cooling curve, and Tg of poly(epoxyimide)s were measured by TFSA. But commercial flip-chip package material's high shrinkage effect prevented thin film formation which is desirable.