

**Mechanical and Thermal Properties of DGEBA-CTBN/MDA System**  
**(DGEBA-CTBN/MDA 계의 기계적 및 열적 성질)**

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Mechanical and thermal properties of epoxy-rubber/amine system were tested. Epoxy resin was diglycidyl ether of bisphenol A(DGEBA) and it was toughened by rubber, carboxyl-terminated butadiene acrylonitrile(CTBN) copolymer. To give toughness to epoxy/amine system, DGEBA was pre-treated with CTBN for 1hr at 100°C and MDA was well-mixed with that compounds. CTBN contents were 0, 5, 10, 20 and 25 phr. After curing at 80°C for 1.5 hr, the system was cured at 150°C for 1 hr. Then, they were taken form and shape of mechanical properties specimens and the samples were analyzed by DSC. Heating rate of DSC was 5 °C/min.

Mechanical properties were studied with relation to the glass transition temperature( $T_g$ ) of the system. Generally, mechanical properties have related with  $T_g$  and the tensile strength of epoxy resin which was toughened by rubber was decreased with the decrement of  $T_g$ . That is, tensile strength was proportional to  $T_g$ . However, impact strength increased with the increment of  $T_g$ . These results were due to toughening agent. In this system, CTBN was toughening agent. When CTBN was introduced into DGEBA/MDA system, CTBN reduced the crosslink density of DGEBA/MDA system.