

### Hysteresis behavior of flexible polyurethane foams with two different types of isocyanates

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In applications of polyurethane (PU) foams for automotive seat materials, hysteresis characteristic of the foams during compression test is considered as the most important factor. PU foams are widely used in automotive parts for sound absorption and seat cushion. Especially, the seat materials require various properties such as hysteresis loss, sag factor, compression set, and stress relaxation to satisfy human comfortability during driving vehicles. PU foams are generally fabricated with various ingredients such as polyol, isocyanate, catalysts, surfactant, water, and cross-linker. Amongst those components, isocyanate molecular structures play a crucial role in achieving enhanced seat properties by establishing well-defined cell morphologies (cavities and pores). By applying two types of isocyanates (MDI and TDI) in manufacturing PU foams, there is an optimum contents of isocyanate molecules for the highest material properties. In order to examine various material properties, scanning electron microscopy (SEM), dynamic mechanical analysis (DMA), and universal testing machine (UTM) are used.