

**EFFECT OF BLOWING AGENT TYPES AND
BLOWING AGENT LOADING LEVELS ON
PROPERTIES OF NR CELLULAR COMPOSITE**

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ABSTRACT

In this study the influences of chemical blowing agent types and blowing agent loading levels on cure characteristics, physio-mechanical and morphological properties of natural cellular rubber was investigated. The blowing agents used were NaHCO_3 (sodium bicarbonate), DNPT (Dinitrosopentamethylene tetramine) and isopropanol. The cellular rubber samples were prepared using conventional compression molding technique via a heat transfer foaming process. When considering the cure behavior, it was found that maximum torque, scorch time and cure time tend to decrease with the increase in the blowing agent loading levels for all three blowing agent types. As a result, the cellular rubber with large cell size and non-uniform cell distribution was observed. The coalescence between bubbles was observed in the specimen with 10phr of all three blowing agents owing to high gas content in the rubber matrix. Mechanical properties of the cellular rubber in terms of relative density, water absorption, compression set, cross link density and tensile strength were gradually decreased upon increasing the blowing agent loading levels.

Key word: Cellular rubber, Chemical blowing agents, compression set, DNPT, Isopropanol, NaHCO_3 , physical properties, relative density and tensile strength