

Development and Characterization of Synthetic Non-Woven for Sound Absorption

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Abstract : Acoustics is the scientific study of sound which includes the effect of reflection, refraction, absorption, diffraction and interference. Sound can be considered as a wave phenomenon. A sound wave is a longitudinal wave where particles of the medium are temporarily displaced in a direction parallel to energy transport and then return to their original position. The vibration in a medium produces alternating waves of relatively dense and sparse particles -compression and rarefaction respectively. The resultant variation to normal ambient pressure is translated by the ear and perceived as sound. Today much importance is given to the acoustical environment. The noise sources are increased day by day and annoying level is strongly violated in different locations by traffic, sound systems, and industries. There is simple evidence showing that the high noise levels cause sleep disturbance, hearing loss, decrease in productivity, learning disability, lower scholastic performance and increase in stress related hormones and blood pressure. Therefore, achieving a pleasing and noise free environment is one of the endeavours of many a research groups. This can be obtained by using various techniques. One such technique is by using suitable materials with good sound absorbing properties. The conventionally used materials that possess sound absorbing properties are rock wool or glass wool. In this work, an attempt is made to use synthetic material in both fibrous and sheet form and use it for manufacturing of non-woven for sound absorption.

Keywords : acoustics, fibre, non-woven, noise, sound absorption properties, sound absorption coefficient

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