

# Design and Development of Non- Newtonian Fluid Speed Breaker

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**Abstract:** Speed bumps, as traffic calming devices, have been extensively used to reduce traffic speed on local streets. This study represents a unique application of Non-Newtonian fluid as Speed Bump. This technical paper relates to a device that reduces the speed of any over speeding vehicles travelling on a roadway. It is formed by a flexible material which consist of Non-Newtonian fluid in it i.e. each receptacle is impregnated with a dilatants shear thickening fluid. The material is placed under compression during impact when the vehicle strikes it and the fluid itself acts as means for controlling the resistance to deformation of the strip. Thus, if the vehicle travels at a low speed the fluid has a low viscosity and the strip is easily deformed, whereas if the speed of the vehicle is high the viscosity of the fluid is high and as a result has great resistance to deformation, thus forming a rigid obstacle to the passage of the vehicle. Drivers must always slow down when driving over the conventional speed breakers to prevent damage to their vehicle. However, the Non-Newtonian fluid Speed Breaker is sensitive to the speed of the vehicle. The vehicle needs to slow down only if it is over speed.

**Keywords:** Bumps, Non-newtonian Fluid ,Viscosity, Speed Breaker, Flexible Material, Rigid obstacle, Shear Thickening Fluid