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Contact Point: An Investigation On How Applying Stress to a Fluid Effects the Fluid's Ability to Disperse Force

The purpose of this experiment is two-fold, first the experiment will determine whether applying prior to impact stress to a fluid will substantially affect the amount of force that the fluids will be able to disperse, furthermore, if the fluids are able to disperse significant amounts of force with the addition of stress before impact, this test will determine what type of fluid (newtonian, thixotropic and dilatant) is most efficient at dispersing force with a prior impact stress. Specific fluids were subjected to increasing amounts of psi and were then subjected to an impact. The data found supported the hypothesis, which stated: If different types of fluids (newtonian, dilatant, pseudoplastic) with varying viscosities are tested for resistance to force under pressure, then the more viscous dilatant fluids will be able to disperse the largest amounts of force as stress increases, however, the viscosity will also increase. The dilatant fluid tested did show the largest increase in force dispersal (.6N). However, as the amount of stress increased, the viscosity also significantly increased. Despite this, the fluid still was able to disperse significantly larger forces as stress increased. This study supports that dilatant fluids could be used effectively in any situation which required force to be dispersed and that adding stress is an efficient way of increasing the maximum amount of force that any dilatant or newtonian fluid is able to disperse. The ability to disperse force and then return to a fluidic state gives these fluids numerous practical applications.