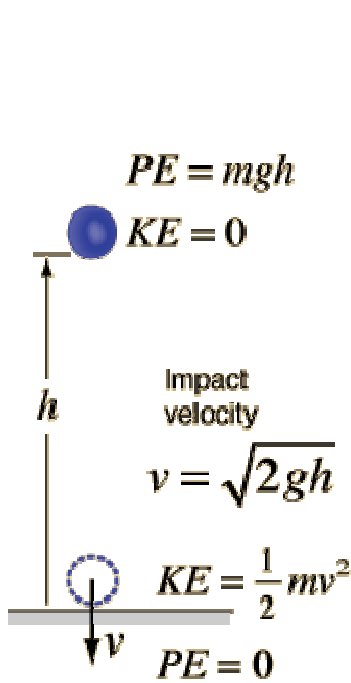


Calculating Impact Force Of Falling Tup To Determine Impact Strength Of A Plastic

Even though the application of “law of conservation of energy to a falling object allows us to predict its impact velocity and kinetic energy, we cannot predict its impact force without knowing how far it travels after impact.



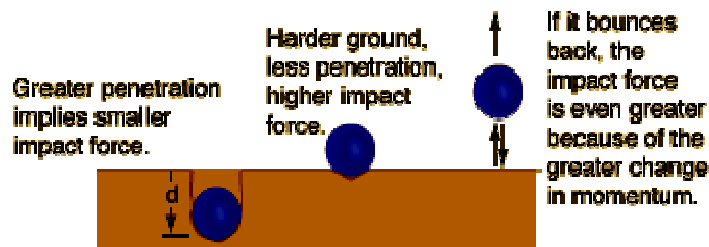
If an object of mass $m = 2$ kg is dropped from height $h = .914$ m, then the velocity just before impact is $v = 4.2325$ m/s. The kinetic energy just before impact is equal to $K.E. = 17.914$ J.

But this alone does not permit us to calculate the force of impact!

If in addition, we know that the distance traveled after impact is $d = .0005$ m, then the impact force may be calculated using the “work energy principle” to be

Average impact force = $F = 35828$ N. or 8,054.45 pounds force
Divide by the surface area of the .350 tup (.0673)

119.5 KPSI Of Impact Force Applied On MAX BOND LOW VISCOSITY SPECIMEN



Note that the above calculation of impact force is accurate only if the height h includes the stopping distance, since the process of penetration is further decreasing its gravitational potential energy.