INFLUENCE OF PARTICLE SHAPES ON THEIR FALL VELOCITY

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An Abstract

The fall velocity is an important property of a sediment in suspension. The fall velocity must be known before the modern concepts of sediment distribution and sediment transportation in a stream can be evaluated. Based on experiments with disks and spheres in different fluid media, it is known that the forces acting on particles can be quite adequately defined by three dimensionless parameters, namely:

Reynolds Number, R_e

Drag Coefficient, C_D

Shape Factor, sf

Recent investigations carried out to determine the shape factor of natural sediment particles indicate that the shape is an important factor in determination of the fall velocity. Additional factors assume importance under certain conditions. Among these factors are surface roughness and specific gravity. In general variations in specific gravity are small and can be ignored. At higher Reynolds numbers, surface roughness cannot be ignored.

E

The importance of shape in considering the fall velocity has been established. More refined methods of measuring the variables need to be developed before the importance of other factors can be properly evaluated.