

## Session 14

### Angle of Repose ( $\alpha$ )


It is the angle of the inclined plane at which a block resting on it is about to slide down the plane under the action of its own weight only is known as angle of repose. It is denoted by  $\alpha$ . It can be proved that the angle of repose is equal to the angle of friction,  $\alpha = \phi$ .

### Angle of repose

The flow characteristics are measured by angle of repose. Angle of repose is defined as the maximum angle possible between the surface of a pile of powder and the horizontal plane.

$\tan \phi = h/r$   
 $\phi = \tan^{-1}(h/r)$

Where,  $h$  = height of pile  
 $r$  = Radius of the base of pile.  
 $\phi$  = Angle of repose.



The angle of repose is calculated by measuring the height and radius of heap of powder formed.  
The frictional forces in a loose powder can be measured by Angle of repose.  
The lower the angle of repose, better will be flow property.

## Angle Of Repose

- With increase in angle of the inclined surface, the maximum angle at which body starts sliding down is called angle of friction.

