Rathole Index

Material Flow Solutions, Inc.

Our motto is: No More Rats

Ratholes. A rathole is formed when material does not flow along container walls. The active flow channel is then limited to the center of the container leaving a large mass of solid clinging to the container wall. The critical rathole dimension is the size of the largest flow channel that will result in stable rathole formation in a funnel flow bin design. Active flow channels in a funnel flow bin must be greater than this value to prevent stable rathole formation. It is important to note that ratholes cannot form in mass flow hoppers. The critical rathole dimension is a function of the maximum stress level in a bin and, hence, depends on the maximum diameter of the bin, the external forces arching on the material, the density of the bulk and the geometry of the bin.

The ***Rathole Index*** is a measured value that defines the critical rathole dimension of a particular material and is evaluated at a prescribed stress value. Although the rathole index is derived for use in describing bin flow behavior it has many other uses as indicated below.

At Material Flow Solutions, Inc. we use a combination of standard and proprietary testing methods to determine the rathole index of your material.

PRACTICAL APPLICATIONS of the ***Rathole Index*** include, but are not limited to:

- Selecting proper blenders for a prescribed material
- Identifying fluidization problems
- Determining agglomeration feasibility
- Determining tablet press or briquetting feasibility
- Evaluating segregation mitigation potential
- Predicting flow rate and flushing problems
- Estimating de-aeration times
- Estimating pile slope stability

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