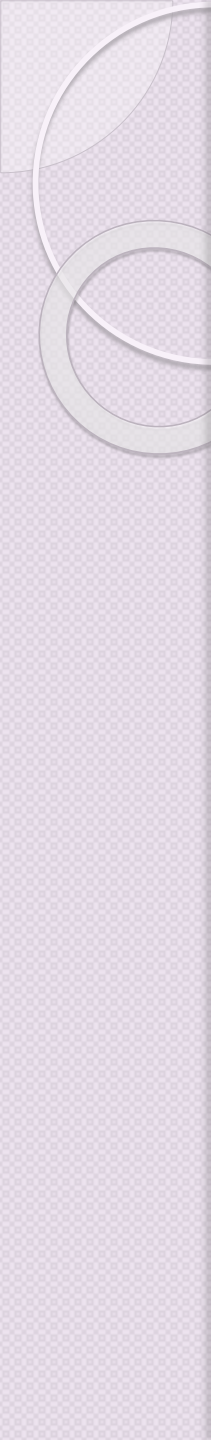# 13. WEEK

MIXING OF SOLIDS

Mixing of Powders

How is the ideal mixture?

Suppose that there are two separate clusters of dusts of equal size and densities in equal amounts.

a) Two separate unmixed dust clusters
b) Randomly mixed dust cluster
c) Ideally mixed dust cluster

- In the ideal mix, the particulate of each individual powder mixture is in contact with the particulate of the other powder mixture. However, this is not a practical mixture.

Mixing Index

The parameter used to understand how the mixing process is a random mixture is called the «mixing index».

In my ideal mixes, the standard deviation value is always small.

Powder Mixing Mechanisms

Convective Mixing

Slipping Mixing
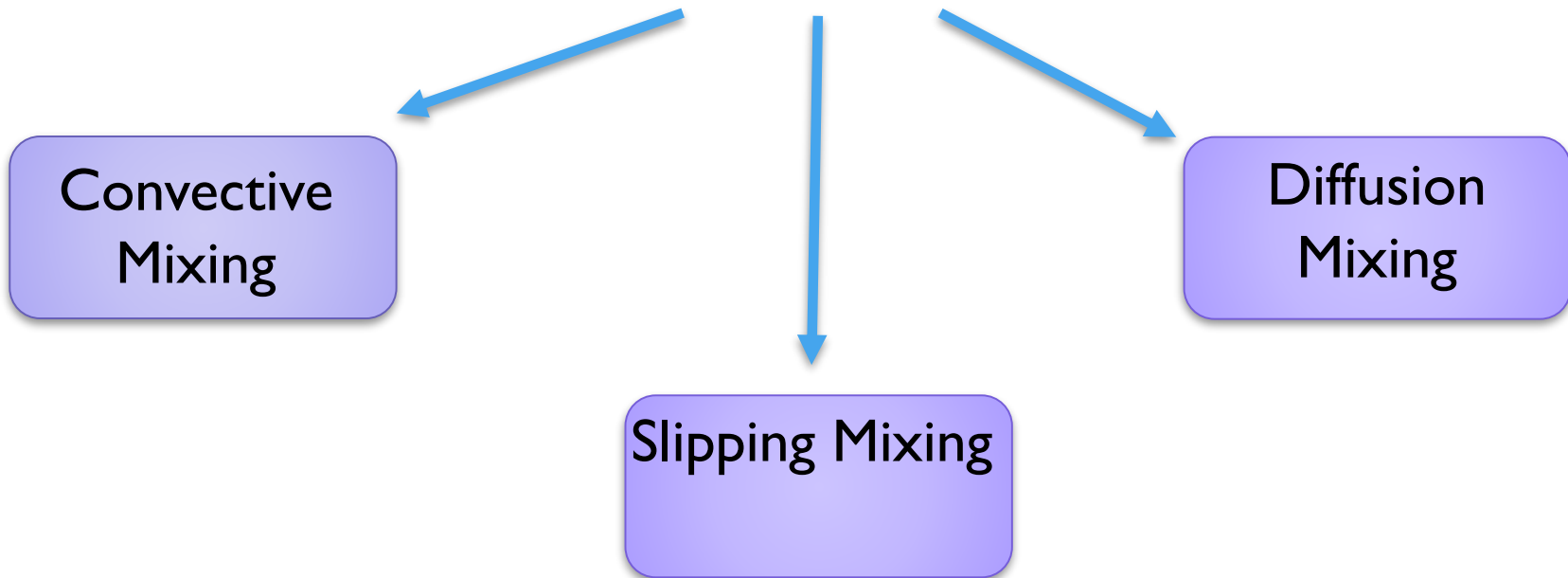
Diffusion Mixing

❖Convective Mixing

Most of the material to be mixed moves from one region to another. With this type of mixing, the bulk mixture comes into play.

❖Diffusion Mixing

Depending on the random movements of the particles, they must change their position relative to each other in the mixture. The result of the change of position is to provide homogeneous mixing.

❖Slipping Mixture

A slip surface is formed between the powder masses. Powder clusters slip on these surfaces.

POWDER MIXERS

Hand Devices

Industrial Devices

Powder Mixers For İndustrial Use

Mixers that mixed the powders by changing the position of powders

Mixers that mixed the powders through dipping

Mixers that mixing powders over each other

Mixers That Mixed the Powders by Changing the Position of Powders

Mixers is working with diffusive mixing mechanism. In this type of mixer, the dusts are moved up and down from one place to another.

Mixers That Mixed the Powders Through Dipping

Convective mixing devices. In this type of mixer, the powder placed in the reservoir is divided into two parts depending on the shape of the reservoir and the mixture is dispensed onto each other during each period of operation.

Mixers That Mixing Powders over Each Other

Systems that provide homogenous mixing.