



# Bulk Material Flow Problems when Metering Paint Pigments

## Question

We have two silos containing pigments. One silo contains Bayferrox Yellow pigment and the other contains Cathay Coat Yellow pigment. Both silos are connected with one weigh hopper. The Cathay Coat Yellow pigment is being metered from the weigh hopper at a rate of 40 tons per hour but Bayferrox Yellow pigment is only being metered at a rate of 3 tons per hour. We need to meter both bulk materials at the same rate of 40 tons per hour. What is happening to cause the drastic differences in metering rates? Please suggest check points!

## Answer

The flow characteristics of bulk materials can vary greatly and depend on the design of the silos and transitions to the weigh hopper. It appears that the Cathay Coat Yellow pigment flows better than the Bayferrox Yellow pigment. The Bayferrox Yellow pigment is probably bridging in the silo or transition to the weigh hopper resulting in poor bulk material flow and reduced feed rate. I would suggest having both materials tested by Jenike & Johanson to determine their flow characteristics. Jenike & Johanson is the premier bulk material engineering firm with expertise in powder and bulk solids storage, handling, conveying, and processing. Also, the shape of the silos as well as the transition to the weigh hopper needs to be examined to determine if bulk materials are not flowing properly. The bottoms of the silos and the transition to the weigh hopper may need to be redesigned to promote mass-flow, the movement of bulk materials all at once.

You can check for mass-flow by visually monitoring the pigment in the silos. If the level in the silos decreases in height at an even rate across the width of the silo, then you have mass flow. If only the center of the silo decreases in height as the pigment is discharged, then you have funnel-flow. You can also monitor the discharge of pigment at the transition for the weigh hopper. The flow of pigment should be even and consistent. If not, then you have bridging of the pigment in the transition to the weigh hopper.

The problems you have described are easily solved with bulk material testing and a possible redesign of your silo bottoms and the transition to the weigh hopper. KWS is the leader in the design and manufacture of bulk material handling equipment. Our engineers will help you diagnose the problems and provide solutions. Please contact us at 1-800-543-5528 or visit our website at [www.kwsmfg.com](http://www.kwsmfg.com).



**Design  
Engineering  
Manufacturing**

### KWS Manufacturing

3041 Conveyor Drive  
Burleson, Texas 76028

Toll Free: (800) 543-6558

Phone: (817) 295-2247

Fax: (817) 447-8528

[www.kwsmfg.com](http://www.kwsmfg.com)