

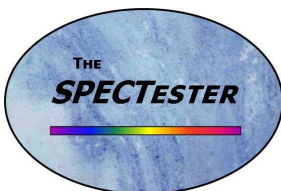
The SPECTester

Innovative Segregation Tester Measures:

- ◆ Segregation by Particle Size
- ◆ Segregation by Sifting
- ◆ Segregation by Fluidization
- ◆ Segregation by Angle of Repose
- ◆ Segregation by Air Entrainment
- ◆ Segregation by Chemical Composition



Identifies both primary and secondary segregation mechanism



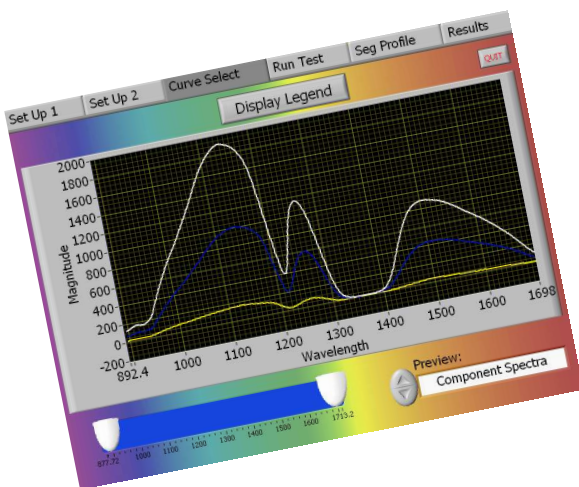


Most manufactured products today are mixtures of several components. Generally, the individual ingredients in a mixture separate (segregate) during processing, resulting in an inconsistent final product. No matter the root cause of segregation found in today's industrial processes, the end result is often a box of Lucky Charms® with too many (or too few) marshmallow hearts—or an Advil® caplet with too much (or too little) ibuprofen content—or a box of Tide® with too much (or not enough) color-safe bleach particles. Each results in customer dissatisfaction and, ultimately, a loss of company revenue.



A Leading Cause of Plant Down Time: Segregation Accounts for 1/3 of Lost Revenue

Segregation, or separation, of granular and powder materials is one of the three main causes of process failure with systems that handle powder materials. It is a global problem, affecting all industries, and conservative estimates suggest that 30% of all unscheduled downtimes are due to segregation and quality issues.



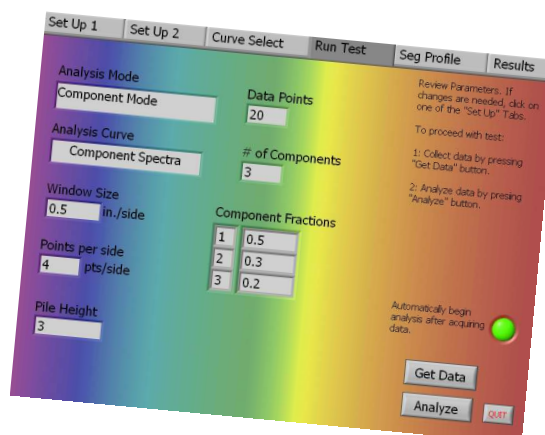
The individual spectra of ingredients in a 3-component mixture

Material Flow Equipment, LLC has developed a novel tester that measures segregation pattern and magnitude for powder and granular materials using spectroscopic techniques. We call it the *SPECTester*. Just as every individual carries a unique thumbprint, every particle emits a unique light spectra signature. The *SPECTester* identifies the light spectra signature of each component in the mixture. It then reads the light spectra signature of



Segregation pattern

the entire mixture sample, identifying the presence, pattern and concentration of the individual components throughout the mixture. The presence of various components in unexpected locations or amounts within the mixture identifies the problem: SEGREGATION. The pattern data identifies the cause, or mechanism, tion. The concentration data identifies the magnitude of that segregation. Using spectroscopic technology, the inno-measures samples containing up to nents and, reports how much as well rial is segregating. Fully automated, tifies: component concentrations, ferences, product uniformity, and up segregation mechanisms.

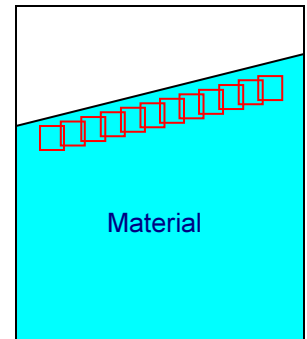
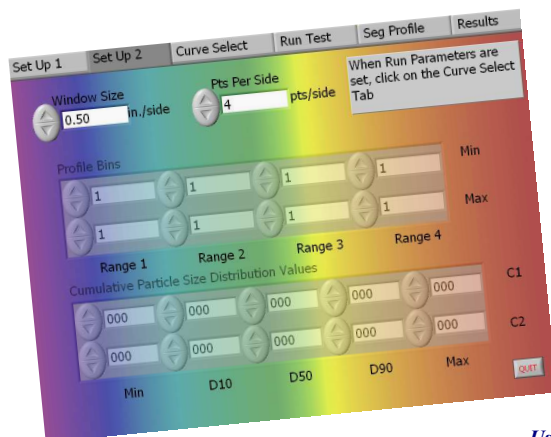


User-friendly touch-screen operation

of that segrega- tifies the magni- state-of-the-art vative *SPECTester* six unique compo- as why your mate- *SPECTester* iden- particle size dif- to four specific

- The Science of Light -

The *SPECTester*'s photospectrometer acquires data to analyze the segregation potential of the material mixture by scanning the top layer of the material pile in the testing hopper. Users specify the size of each square by entering the length per side. The recommended default is 0.50 in./side which means that each square analyzed will be $\frac{1}{2}$ "x $\frac{1}{2}$ ". The User defines the size of the matrix contained in each Square by selecting the number of points per side. Selecting "4" results in a matrix of 16 points of data acquired within each square. The *SPECTester* will measure up to 50 squares along the pile edge, with a matrix of up to 49 points within each square.



User-defined test parameters adjust for particles of all sizes—from very fine nano-scale to 1/4 inch

Specific Machine Features:

- ◆ FAST – 10 to 30 minutes to run an analysis.
- ◆ Measures a mixture of up to 6 unique components
- ◆ Identifies primary segregation mechanism out of 4 specific mechanisms
- ◆ Identifies segregation by particle size, sifting, fluidization, angle of repose, chemical component and air entrainment
- ◆ Provides data about component concentration, particle size differences, product uniformity
- ◆ Identifies process design parameters and quality control issues
- ◆ Results scalable to process conditions – mimics actual process conditions
- ◆ 50 segregation points measured within a sample
- ◆ Fully automated, reports how much as well as why the material mixture is segregating
- ◆ Touch-screen/pad control
- ◆ Provides uniformity index for sample, and segregation variance data
- ◆ Data can be exported in Excel format
- ◆ Certified CE Compliant

Distributed by:



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