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*A 60 durometer urethane flex panel.*

## Solutions for Dry Fines Screening

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The aggregates industry has for many years battled to improve screening efficiency in fine "dry" screening applications. The problem is that these "dry" screening applications are very rarely dry. They typically involve screening material that has a moisture content of 3 percent or greater and that means blinding, especially in the 1/4 in. minus opening decks. Blinding causes problems with product gradations and can wreak havoc in crushing and screening circuits.

A screen deck may start out clean and efficient at the beginning of a production shift, but accumulative blinding can cause fluctuations in product gradation curves. It can also cause variations in feed rates and gradations to other parts of the screening and crushing circuit thus disrupting not only product gradations but plant performance as well.

Moisture in material has a number of sources but the ones that seem to cause the most problems in everyday screening and crushing circuits are:

- Weather—rain and melting snow,
- Natural moisture in quarried or pit run material, and
- Water added for dust suppression.

Many plants have to shut down when it rains, especially those with 2-3 percent inherent moisture in quarried or pit run material. The increase in regulation of fugitive dust has made it necessary for producers to have more water sprays in more areas of their dry screening and crushing plants. In many plants, proper dust control cannot be achieved without adding through water to the material to cause blinding on fine opening screen decks. Inherent moisture in many dry mined sand and gravel pits make fine dry screening a real challenge.

Long slotted wire screens had been the norm for many years

to combat blinding. However, with the advent of tighter state, private, Superpave product specs, a "tighter" separation is required in secondary and tertiary screening applications without passing elongated or slivered materials. Anyone dealing with Superpave specs has come to learn what 3 to 1 particle size is! Blend and batch type plants need properly graded material without elongated particles in their bunkers in order to blend properly graded materials. Many applications with material in the 8-10 percent and higher moisture range cannot be screened efficiently without using a long slotted wire, but these applications are usually not producing the tight asphalt or Superpave specs.

The introduction of synthetic and special weave wire cloth has greatly helped improve screening performance in many applications. These screens are no longer "new age" synthetic surfaces but have been in use for several years in some of the largest and most prestigious quarries and pits in the United States.

- The Z slot, Vino, or "diamond weave" wire cloth has proven effective in many blinding applications, especially in portable plants where product changes are common and it is not cost effective for the operator to tie up money on different openings of the more expensive synthetic screens. The triangular-shaped aperture requires knowledgeable sizing in order to get the correct separation, but these screens will produce a better product than long slotted wire screens. In hard rock and gravel applications, wear-life may be a concern, and a determination of cost effectiveness compared to throughput must be made.

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