Circular vibratory screeners solve polymer plant start-up problems.

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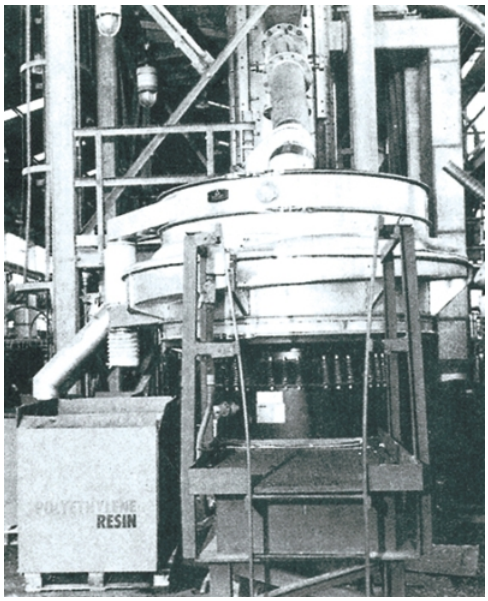
CP STAFF

New Solutions to Plant Problems

Problem:

When production began in a new polymers plant, personnel ran into the problem of off-size pellets of polyethylene. With two lines running at 26,000 and 30,000 Ibs/hr, an immediate solution was critical.

Because the polyethylene was of excellent quality, except for particle size, plant operators were faced with one of two choices. They could remelt and reprocess all of the material. This, however, would have been extremely costly considering the thousands of tons of polyethylene involved, not to mention interruption of normal plant operations during this critical startup period. Alternatively, they could separate the off-size output from material within an acceptable size range for marketing

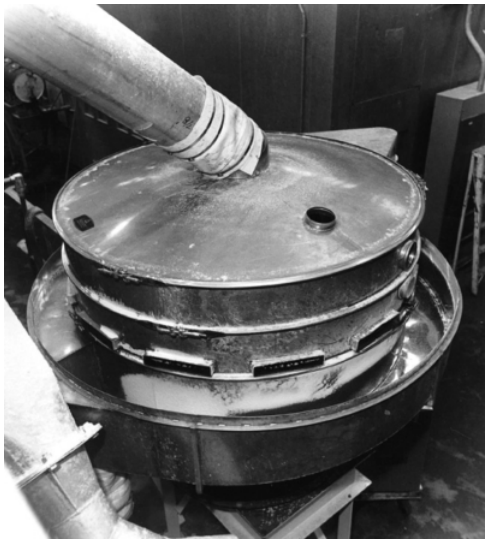


Correctly sized pellets are discharged directly into shipping containers.

Solution:

Personnel decided to use the separation process. Specially modified versions of standard circular vibratory separators which would perform the critical separations at high throughputs were required. Two separators, modified to perform at 26,000 and 30,000 Ibs/hr were purchased.

The circular screen separators are unitized machines, which impart adjustable. Multi-plane, mechanical, inertial vibrations to material being processed. The basic assembly consists of a number of interchangeable frames that hold the screen cloth decks and provide the discharge outlets. Material to be screened is fed to the center of the top screen oversize particles are moved by the multi-plane motion to the screen periphery where they are discharged. Undersize particles pass rapidly through the screen.



Clumps of oversize polyethylene pellets are fed into center entrance of the separator.

Both the units are of stainless steel construction with conventionally designed upper decks and custom-designed lower decks This configuration is used to scalp the oversized clumps of pellets being fed to the upper screen Correctly sized material passing through the upper screen is then dedusted by the lower deck. The resultant output is a specified pellet size range, which is applicable for use in the resin manufacturer's markets

The separator that handles the 26,000 Ibs/hr. production is different from standard units in that the lower deck is a cascade deck, with a full 360° peripheral discharge. In operation, this configuration creates a particle bed level of single particle depth, and therefore most efficiently shakes off the fines during the dedusting step.

The 30,000 Ibs/hr separator is similarly designed, with the exception that the slope of the cascade deck was adjusted to move material more quickly around the deck, accommodating the additional through-put.

Since single exit spouting was required along with the high total volumetric flow on both units, the custom-designed lower deck allows oversize material to flow off over the entire circumference of the lower screening deck onto a peripheral conveying chute with an inclined ramp which quickly conveys the

product to the exit spout. These spouts are 18" wide on one machine and 21 " wide on the other.

Results:

What particularly impressed the chemical plant's management was the unusually quick response to their emergency needs The two machines were virtually "telephone designed" on a crisis basis with dimensions being changed on the shop floor as the details of the problem were delineated The end result was not only an ultra-fast delivery, but a solution to the plastic producer's particle size problems