

For Immediate Release

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NEW HIGH-EFFICIENCY RECLAIM LINE TRANSFORMS DISSIMILAR MATERIALS INTO INSTANTLY USABLE PELLETS

Extensive System, from Shredding to Pellet-Handling, Was Designed for Raven Industries by ADG Solutions, with Equipment Supplied by Davis-Standard and ADG

SIOUX FALLS, ND, U.S.A., July 30, 2013: A sophisticated new reclaim line designed and specified by ADG Solutions has enabled the Engineered Films Division of Raven Industries, Inc. to recover polymer from internal processes and pelletize it under conditions so controlled that the pellets can be used instantly, it was announced today by ADG Solutions.

In designing the system for Raven Industries, Sandy Guthrie, president of ADG Solutions, specified a Polycycle® cascade reclaim system and an EPIC III™ process control system from Davis-Standard. ADG Solutions supplied the shredding/conveying system, automatic screen changer, and pellet handling system.

“This advanced reclaim line achieves a closed-loop recycling stream for our facility by reclaiming excess production material in a process that is fully controlled from start to finish,” said Anthony Schmidt, vice president and general manager for the Engineered Films Division. “The reclaim line is a critical step in implementing Raven Industries’ sustainability initiatives by reducing product waste and municipal landfill consumption.”

Until now, the rugged multi-layer polyethylene film produced by Raven Industries for agricultural, construction, environmental, and other heavy-duty uses has been too difficult for the company to reclaim because the polyester fiber reinforcement between the layers is so extensive. The excess internal material—from startups, job changes, or edge trim—either was sent to a reclaim specialist for a fee or went to landfill. The new system adds the capability of reprocessing up to 15 million lb. per year, according to the company.

“We did a great deal of research into existing reclaim operations at other companies before undertaking this project with ADG Solutions,” said Michael Feltman, engineering manager for the Engineered Films Division. “Our preliminary estimate is that our new line has far exceeded the throughput capacity that we expected, by a margin of 15 to possibly as much as 25%.”

Feltman attributed the unanticipated bonus in productivity to the efficiency of the equipment specified by ADG Solutions, and Guthrie’s design of the equipment layout to make the best use of the space that Raven Industries had to work with.

Total-System Approach to Reclamation Yields High-Quality, Ready-to-Use Pellets

The reinforced polyethylene film for covers and other uses is a typical example of the “difficult” excess material generated during film manufacture at Raven Industries. The company builds strength and wind resistance into the product by reinforcing it with polyester fiber.

Raven Industries' new line for reclaiming such material is outlined by ADG Solutions' Sandy Guthrie as follows:

- **Initial melt processing.** After shredding, the scrap is fed into a Davis-Standard ram stuffer extruder, which is designed to compensate for bulk density variations.
- **Melt filtration.** The heavily contaminated polymer passes through a self-cleaning screen changer designed by the Italian firm Fimic SAS, for which ADG Solutions is the exclusive North American importer. The screen changer is designed to filter out contaminant without causing extruder downtime or requiring operator intervention. As molten polymer enters the screen changer, contaminant accumulates on the screen plate until back pressure reaches a preset level. This actuates a rotating blade which sweeps the screen and purges the contaminant through a central discharge port.
- **Devolatilization.** A melt pump delivers the filtered material through transfer piping into a showerhead die, which produces thick strands that drop into the feed throat of a Davis-Standard hot melt extruder with a devolatilizing chamber. (It is also possible to feed additives into the material at this stage.)
- **Pelletizing and pellet conditioning.** After passing through a hydraulic screen changer, the molten polymer enters an underwater pelletizer. The material is cooled from the 160 to 180 °F range down to 80 to 85 °F, moisture is removed, fines are filtered out, and pellets are classified by size to ensure there are no over- or under-sized pellets.

“The end product of the new reclaim line at Raven Industries is pellets that are fully conditioned,” said Guthrie. “They can be conveyed into gaylords or supersacks for immediate use, or sent for storage in silos.”

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RAVEN INDUSTRIES, INC., has designed and manufactured high quality, high-value technical products since 1956. Raven is publicly traded on NASDAQ (RAVN) and has earned an international reputation for innovation, product quality, high performance, and unmatched service. Raven's purpose is to solve great challenges in areas of safety, feeding the world, energy independence, and resource preservation. To realize this purpose, Raven utilizes their strengths in engineering, manufacturing, and technological innovation to serve precision agriculture, high performance specialty films, aerospace, and electronic manufacturing services markets. Visit www.RavenInd.com for more information. Email: raveninfo@ravenind.com

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