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Scaling Up Safely

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Green Star Organic Milling protects product quality and supports long-term growth with advanced metal detection

Special to Packaging Technology Today by METTLER TOLEDO Product Inspection

Green Star Organic Milling was founded on a single principle: healthy food means healthy lives. From its Middle River, Maryland facility, the company stone-mills and packages certified organic, non-GMO, gluten-free and heirloom ancient grain flours for retail, bulk and private-label customers across the United States. With consumer demand for high-quality specialty grains continuing to grow, Green Star moved into a new 20,000-square-foot production facility in 2022 and sought new ways to protect product quality and meet food safety requirements.

“Metal detection plays a key role in qualifying for food safety certifications such as SQF. Achieving these certifications allows us to serve a broader range of customers and markets,” said Michael Mehari, director of operations at Green Star Organic Milling. “When we opened the new plant, we knew it was time to invest in high-performance product inspection equipment that would support this next stage of growth. After speaking with our sales representative, Dick DeNenno at Reliant Packaging Machinery, we decided to go with a METTLER TOLEDO metal detector for our retail packaging line.”

Using electromagnetic fields to detect ferrous, non-ferrous and stainless-steel particles, the system automatically rejects any contaminated bags before they reach final packaging. Image courtesy of Green Star Organic Milling

Green Star’s new retail packaging line is fed by three upstream systems, each dedicated to processing different product types. To support this configuration, the packaging line is designed for maximum versatility. Filling retail bags from 140 grams to four pounds, it handles everything from fine flours to non-granulated items packaged for private-label customers such as coffee beans, almonds, lentils and pinto beans. “Switching between products is a frequent part of our operation,” explained Mehari. “We needed an inspection system that could adapt quickly and maintain consistent accuracy.”

To meet their production goals and application requirements, Green Star selected the METTLER TOLEDO M31R metal detector. Using electromagnetic fields to detect ferrous, non-ferrous and stainless-steel particles, the system automatically rejects any contaminated bags before they reach final packaging. The M31R uses METTLER TOLEDO’s patented eDrive technology and SENSE software, which improve detection accuracy and reduce false rejects by filtering out signal variations that naturally occur during inspection.

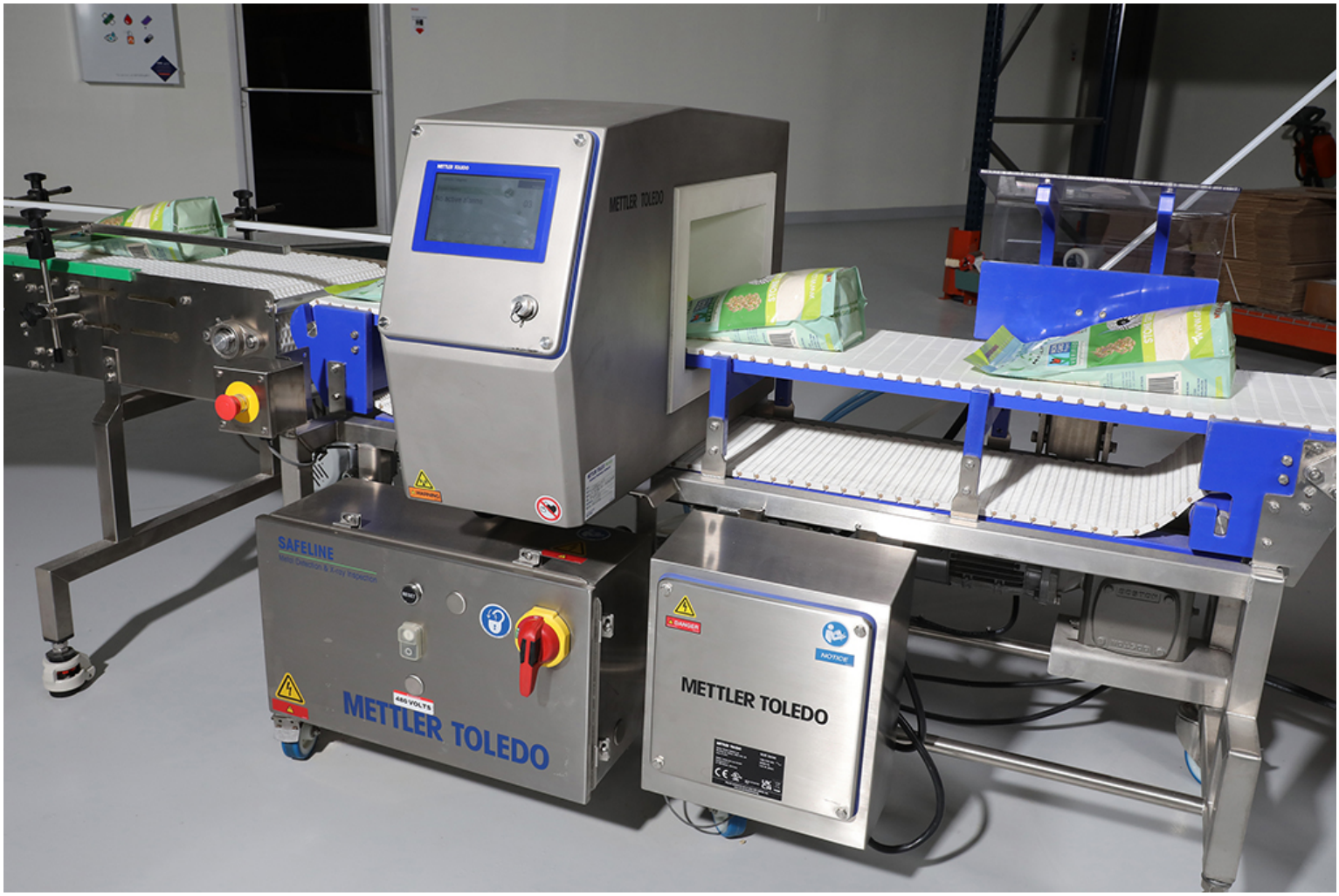
“Our new metal detector has been performing extremely well. We haven’t seen any false rejects or had any unplanned downtime since installation,” said Mehari. “If the system were to detect a potential contaminant, the conveyor is programmed to stop automatically so our team can investigate. Our quality protocol involves opening the package for manual inspection and, when necessary, sifting the product through a fine screen to verify the result.”

Green Star performs verification tests on the M31R at the start of each shift and during product changeovers. The procedures are aligned to the company’s certifications for organic, gluten-free, kosher, and non-GMO production. “The process is simple and consistent,” said Mehari. “Our staff follows a clear routine to confirm the system is performing correctly, and the interface makes it easy to track results.”

Operators manage the metal detector through a 7-inch touchscreen with icon-based menus. Green Star stores multiple product recipes in the system’s memory, allowing quick changeovers between items. “It’s very intuitive to create a new product recipe. The auto-setup routine guides the operator through the process step by step,” Mehari said. “The UI looks like a smartphone, which helps minimize training time.”

While Green Star currently maintains manual inspection records, the M31R includes built-in tools for digital data capture and reporting. Information such as detection results, user activity and alarms can be exported through a USB port or accessed directly via METTLER TOLEDO’s ProdX software for paperless recordkeeping. “These options will be helpful as we expand,” added Mehari. “We plan to automate more of our reporting and audit processes in the future.”

Green Star’s new facility was designed with growth in mind. With space to add more lines and the infrastructure to operate more shifts when needed, the company can scale output as demand increases. Currently inspecting about 45,000 pounds of product a day, the M31R has the capacity to handle up to 150,000 pounds, supporting Green Star’s continued expansion without the need for new equipment.



The M31R uses METTLER TOLEDO's patented eDrive technology and SENSE software, which improve detection accuracy and reduce false rejects by filtering out signal variations that naturally occur during inspection. Image courtesy of Green Star Organic Milling

Supporting these long-term plans requires equipment built for durability. The M31R's stainless-steel frame and sealed electronics protect against dust and moisture, while its vibration-resistant design minimizes interference from nearby equipment to maintain reliable performance over long production cycles. "It's been dependable since day one," said Mehari. "We haven't needed any service or adjustments."

Reliability is a priority throughout Green Star's operations, where facility design, equipment selection and production practices all align to support efficient, steady output. The milling area is fully enclosed to control dust and prevent cross-contamination, while the packaging room operates under strict hygiene and traceability protocols. Routine verification and employee training further reinforce consistent performance even as production scales.

With new certifications and infrastructure in place, Green Star is now positioned to reach a broader range of customers across retail and ingredient markets. Its flexible retail packaging line including advanced metal detection give the company the agility and reliability needed to serve evolving customer requirements. Mehari said these capabilities help Green Star meet growing demand for specialty, sustainably sourced foods and reinforce its position in the natural and clean-label ingredient markets.

"Every improvement we make, from upgrading our equipment to refining our processes, strengthens our ability to offer safe, reliable products," concluded Mehari. "The METTLER TOLEDO M31R metal detector reflects our commitment to exceptional product quality and to the customers who depend on us to deliver it every day."

About Green Star Organic Milling

Green Star Organic Milling was founded on a single principle: Healthy food means healthy lives. It's this principle that supports Green Star Organic Milling Beginning in Organic NON-GMO Ancient healthy food production business to bring the benefits of all-natural ancient grains to the west. However, Green Star Organic Milling quickly realized that many consumers in western markets were unfamiliar with the concept of ancient grains and the amazing benefits they provide for our health. Thus, we created this organization to educate our customers on the value of Organic NON-GMO heirloom Ancient Healthy Gluten Free Stone Milled whole grain flours along with providing the highest quality grain products to our local and international clients.

Learn more about Green Star Organic Milling at www.greenstarmilling.com and contact Michael Mehari at Michael@greenstarmilling.com

About METTLER TOLEDO Product Inspection

METTLER TOLEDO is a leading global manufacturer of precision instruments and a service provider. The company ranks highly in a number of market segments and is a global market leader in many areas. METTLER TOLEDO is one of the largest providers of weighing systems and analysis instruments for use in laboratories and in-line measurement within demanding industrial and food production processes.

The Product Inspection division of METTLER TOLEDO is one of the leading providers within the field of automated inspection technology. The division includes the following brands: Safeline metal detection and X-ray inspection, Garvens and Hi-Speed checkweighers, and CI-Vision machine vision systems. The product inspection solutions improve manufacturers' process efficiency and help them comply with industry standards and regulations. METTLER TOLEDO systems ensure consistently higher product quality, helping protect both consumers as well as the reputation of manufacturers and their products and brands.

For more information about Mettler-Toledo Product Inspection, visit www.mt.com/pi and contact Sarrina Crowley, Marketing Communications Specialist: sarrina.crowley@mt.com

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