INDUSTRY application

Metal detectors help ensure product purity at Global Health Industries

The DSP metal detector, shown here installed on a bottling line, uses the same interface as the other Eriez metal detectors at Global Health Industries. "If you know one, you know the other, and that just makes it easier for everyone," said Kim Wybrow, the company's production maintenance supervisor.

When it comes to producing private-label vitamins and supplements for its network of distributors, Global Health Industries doesn't cut corners on quality-control measures. In fact, the family-owned business in Ogden, UT, has established numerous product safety checkpoints, from the raw-material receiving area to final packaging.

That's important because Global Health performs all operations in-house, including R&D, formulation, manufacture, testing, and packaging. Products include multivitamins, herbal extracts, and drink mixes, which the company offers in capsules (gelatin and vegetarian, including pullulan), tablets, and/or powders. Packaging includes bottles, blisters, and sachets, all of which the company can shrink-wrap in bulk, pack, or box form based on the client's requirements. The company's facility also holds a Certificate of Manufacturing from Australia's Therapeutic Goods Administration, one of the world's most active regulatory agencies for dietary supplements.

Metal detectors

To help ensure quality, Global Health uses several metal detectors supplied by Eriez of Erie, PA, as well as an Eriez rare-earth magnet in the receiving area to remove ferrous contaminants from raw materials before they pass through a screener.

"You never know how clean the raw material will be when it comes in from our suppliers or if any small metal works its way into the processing end," said Kim Wybrow, Global Health's production maintenance supervisor. "Metal slivers can come off a stainless steel mixing vat or a capsule machine. Sometimes a screw or small washer falls off during the production process. These pieces are quite small and can be picked up by the metal detectors. Once the metal is detected, a light comes on and the product goes through the reject system. It does add another level of safety for our customers. It's very important to have equipment like the metal detectors on-site for final inspection of product before shipment." Workers verify that the detectors are working properly by passing test cards through them every 15 minutes, Wybrow said.

The company's first metal detector, an Eriez unit installed 15 years ago, is still in use. Since then, the company has added an Eriez DSP detector to a bottling line and Pharmaceutical detector to its tabletting operation. The company plans to install two more Pharmaceutical detectors this year, and Wybrow said he hopes to eventually install an Xtreme metal detector, which is the newest model.

How they work

Eriez's metal detectors use three coils that surround the aperture through which products pass, and the center coil creates an electromagnetic field within that space. The other

coils, called receiver coils, are equidistant from the center coil and are connected in series. Because the energy between the center coil and the receiver coils is balanced, it cancels and the net output from the pair is zero.

That balance is disturbed, however, when a conductive element—such as metal—passes through the coil set, and if that element creates a large enough change in amplitude, the detector reacts. The sensitivity of the metal detector is adjustable and can be affected by the characteristics of the product being screened, the type and shape of metal to be detected, the aperture's dimensions, and the position of the metal particle within the aperture.

The DSP metal detector installed at Global Health includes a belt conveyor and reject mechanism. It has also a 1X4 video graphics array touchscreen interface, an automatic balance, and reject confirmation. Its power supply and control are consolidated in four electronic circuit boards, which are housed in a NEMA 4X enclosure.

Reliablity

Wybrow expressed a strong preference for the Eriez metal detectors over those supplied by another manufacturer, one of which came with a packaging line that the company bought. In fact, Wybrow said he'd like to replace them with Eriez units because they're more reliable and would use the same interface as the other equipment. "If you know one, you know the others, and that just makes it easier for everyone," Wybrow said. The non-Eriez metal detectors, he said, "need constant attention. I spend too much time with them." He also prefers the customer service that Eriez provides, which enabled Wybrow himself to repair a unit Eriez no longer offers. "I worked with them over the phone and got it working again."

The Eriez metal detectors complement the company's stringent quality-assurance program, which includes protocols to ensure the identity, potency, and purity of raw materials, as well as an in-process testing and inspection policy to ensure that the finished goods meet all specifications.

"We've had very good luck with the Eriez metal detectors," Wybrow said.

"They're always running, no matter what. Our customers are very demanding and we are in an industry that requires product purity. Eriez helps us meet that purity expectation."

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Eriez, Erie, PA.
Tel. 888 300 3743
Fax 814 838 4960
Website: www.eriez.com

Global Health Industries, Ogden, UT.
Tel. 801 621 0900
Fax 801 621 0930
Website: www.globalhealthindustries.com