PRESS RELEASE

Ref: PR1406 - FOR IMMEDIATE RELEASE

COMPANY NEWS

Eriez equipment achieves super purity of refractory minerals

Magnetic separation specialist Eriez Magnetics Europe Ltd has developed a rare earth magnetic drum separation system to help produce the highest levels of purity in ceramic products for a leading worldwide producer.

The company, which specialises in the production of ceramics for industrial applications, requires exceptionally high purity levels in the final raw material (less than 120ppm Fe).

The plant uses a base material of refractory cullet which is ground to produce a fine particle size of less than 0.5mm. However, the material can have a significant ferrous contaminant content of up to 5,000ppm - including some originating from the grinding process itself - which is difficult to separate using conventional ferrite magnets because of the small size of the particles.

The solution was to use rare earth magnets, which produce magnetic fields up to twenty-five times stronger than ferrite magnets without any increase in size, to overcome this problem. Not only can they be used to remove tiny particles of very low mass that may have been produced in the grinding process but also to remove other weakly magnetic materials, such as rust and stainless steel particles which have been rendered paramagnetic through work-hardening.

Material is fed onto the surface of drum magnet and as it revolves it carries the material into the magnetic field. At this point, ferromagnetic and paramagnetic particles are held firmly to the drum while the non-magnetic material falls freely from the shell under its normal trajectory. As the shell rotates out of the magnetic field the magnetic particles are then released from the drum and are discharged via a separate discharge chute.

Tests were carried out at the Eriez laboratory in South Wales using material samples provided by the customer on different drums types and vibratory feeders, all proprietary to Eriez in different configurations to identify and specify the best equipment for the application.

It was found that a high performance rare earth double magnetic drum model RRS in a vertical housing produced the best results, the two-stage application achieving the vastly improved purity required.

The drums were fed by an electromagnetic HS42 vibratory feeder which crucially provides a very even distribution of material. The feeder tray was lined with manganese steel for reduced wear which is important because of the highly abrasive nature of glass.

Now installed, the system is able to handle a throughput of 1,000 kg per hour.

The main benefits of our magnetic drum separators are that they allow high volume of material to be processed, they are self-cleaning and they require very low maintenance and very few spare parts. Eriez offers a refurbishment service on the shell of all drums which is usually the most cost-effective option.

Our vast experience in this sector enables us to specify equipment to very strict constraints of quality and installation. And we usually test the equipment in our laboratory using the actual materials it is to be handling so that we can optimise it before delivering it to the customer. In this instance, a double stage system in a housing was best suited to this application because of the very high level of separation required."

Eriez's rare earth drum separators are available up to 1220mm in diameter and up to 3m wide. Extensive research, development and testing in recent years has also made them more commercially viable.

By using different types of separators with different feeders in different configurations we have been able to significantly expand their potential applications. The additional strength of rare earth magnets can be used in removing weakly magnetic or very fine iron contaminants from not only a wide variety of powdery, dry bulk materials but also from slurries. They also provide cost-effective solutions to the fine and weakly magnetic iron contamination problems in different types of mineral processing.

The development of magnetic separation techniques will undoubtedly surprise some people so we hope to encourage those who may have not found it suitable for their applications in the past to reconsider this option.

- END –

PRESS CONTACT ERIEZ EUROPE

Sophie Comelli, Marketing Executive
Tel: +44 (0)2920 855 854
Email: Sophie.comelli@eriezeurope.co.uk

Eriez Magnetics Europe Limited
Bedwas House Industrial Estate, Bedwas, Caerphilly, CF83 8YG, United Kingdom