

IN-HOUSE DROSS RECYCLING BOOSTS PRODUCTIVITY



At a time when zinc galvanizers are looking to offset process costs, boost productivity and competitiveness, the increased application of in-house recycling is becoming a very attractive and beneficial solution, Pyrotek's Paul Bosworth explains.

Pyrotek is supplying high quality and reliable process solutions to enable zinc galvanizers to recover free zinc from their skimmings.

The Pyrotek MZR (Metallurgics Zinkoff Recovery) systems are compact and efficient recycling units that enable galvanizers to realise the true value of their top dross. The indirect heating effect within the recycler enables the effective separation of the free zinc and zinc oxide. The free metallic zinc can be immediately returned to the galvanizing bath whilst the zinc oxide powder residue can be sold to the zinc chemical industry. In addition to zinc processing, the systems are also operating very successfully in the scrap lead recycling industry.

To suit customer recycling requirements, Pyrotek can supply two sizes of the MZR: MZR-750 and MZR-1500. The MZR-750 model is designed to process 750 kg (1650 lb) batches of skimmings whilst the MZR-1500 is available for larger 1500 kg (3300 lb) batch processing. Pyrotek sales engineers can quickly and easily establish the best system for the application, indicate recovery rates and offer an ROI model. Pyrotek also offers an MZR-750 for material process trials. The system is supplied with several drums to allow a process cycle to be developed.

The process begins with ash being charged into a steel drum. This drum is loaded into the MZR oven and rotated around a burner flame to gently release the free zinc. At the end of the process cycle the liquid zinc is tapped from the drum and the remaining powder cooled to produce the best possible resale product. Design and assembly of the MZR-1500 is carried out at Pyrotek's engineering facility in Burton-on-Trent, England. The MZR-1500 is designed using the latest 3D design software allowing the customer to visualise the unit in the final environment prior to any fabrication.

The electrical control panel incorporates a multi-language customer interface HMI unit allowing for system operation, monitoring and fault diagnosis. The touch screen enables ease of operation for modification to process times and temperatures.

The MZR oven is refractory lined and incorporates two burners with temperature control and over-temperature monitoring. The hydraulic cylinder for lifting the drum door into the operating position is designed for the harsh environment in which the system will be operating. The system can be

supplied with many optional extras including: full guarding for launder and sows, innovative camera system to allow the forklift operator to accurately position the drum on the shaft, and stand alone weigh station with display and printer.

Pyrotek welcomes customers to view the equipment in operation prior to dispatch.



One recent installation of the MZR-1500 at a major customer galvanizing plant in Europe is shown here. The customer generates 1200 t/yr top dross from its two galvanizing lines using GI and GA alloys. Before they brought the recycling process in-house, this ash was sold to traders. The customer was supplied with detailed foundry layout drawings to assist the visualisation and implementation of the project. Pyrotek undertook the full turnkey installation of this system from positioning and fitting the unit and barriers, to commissioning trials and operator training. Pyrotek designed the system to enable simplicity of operation and minimal maintenance for the customer, and included a water scrubber for pollution control. The initial aim was for a 75% metal recovery rate; however, in operation, an average of 85% was achieved with a good quality, low-iron content metallic zinc, directly returnable to the galvanizing pot. The remaining fine zinc oxide residue was sold.

www.pyrotek.info/mzr