

HIGH VOLUME SCRAP MATERIAL SORTING USING XRF

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High commodity prices and the increased use of recycled materials has led to a need for sorting scrap materials (metal, glass, plastic, rubber, wood, etc) at high volume and speed over a conveyor. Elemental analysis through XRF provides a powerful edge over other techniques provided the analysis can be done at the requisite speed and accuracy. We have developed an XRF system to address these general requirements, and which can extract contaminants from recycled glass or from ferrous scrap metal at conveyor speeds up to 5-6 feet/sec and volumes up to 150 tons per hour. The system uses an array of tubes and Si PIN diode detector to classify material in a modular system of digital pulse processors, and is designed to operate in the harsh environment of scrap yards. A graphical user interface provides the operator with a simple means of adjusting selection criteria and operating the conveyor and XRF system. We show the performance in terms of selection efficiency and wastage for two of these applications.