

Bruker launches LIBS analyser for light elements

Bruker Corporation has introduced the EOS 500, a new hand-held element analyser using Laser Induced Breakdown Spectrometry (LIBS). It is designed for high-speed analysis of low-atomic-number elements such as lithium, magnesium, aluminium or silicon. The company notes that this technology is complementary to hand-held XRF analysers, which are well suited to high-atomic-number elements (such as niobium, molybdenum and tungsten), but not as quick for light elements. Compared with hand-held XRF, light element analysis with the EOS 500 is about ten times faster, says Bruker.



The instrument has been engineered for durability in the demanding conditions in the scrap recycling industry,

The EOS 500 is designed for durability in the demanding conditions in the scrap industry

including humid and dusty environments. It has an 'Air Flow Optics Shield' that continuously prevents dust build-up in front of the optics.

The EOS 500 uses a proprietary 1,064 nm laser for plasma generation, which is stated to give low background noise compared with standard LIBS high-energy, low-frequency lasers. With this design, the instrument can analyse challenging elements, such as silicon and magnesium, at less than 0.1% concentration, within seconds.

A multi-detector design covers an extended wavelength range from 170 to 720 nm, allowing the detection of a broad range of elements that a single detector could not cover. The wide wavelength range also allows it to use alternative wavelengths and hence achieve better accuracy by avoiding spectrum overlap.

Optimising abrasive-blasted surface quality

Metal substrate surface preparation is a vital process before coating. Where abrasive blasting is used to clean and prepare a surface prior to coating, the size, consistency and uniformity of the blasting media chosen have a big influence on the quality of the surface finish achieved. In turn, that quality affects how well and reliably a coating then applied adheres to the freshly blasted surface.

The size, frequency and distribution of the microscopic peaks and dimples created on the substrate material's surface, or its 'roughness', also influences the unit volume of the coating applied to achieve the thickness required.

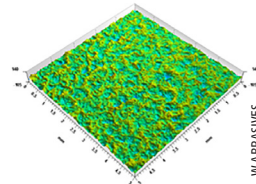
An international supplier of metallic blasting media, W Abrasives has developed a 'turnkey solution' called Surf Prep Pack to help measure and control all of the key parameters of such surface preparation. It comprises a range of technologies.

WA Clean is an opto-electronic device, which assesses blast

cleaning grades as specified in different international standards (ISO, SSPC). WA Dust is an under-development opto-electronic device, designed to evaluate dust quantity ratings and dust size classes included in the ISO 8502-3 specification. WA 3D replicates a blasted surface at the customer site, followed by 3D scanning of the replica off-site to obtain the precise parameters needed to control commercially important factors such as paint consumption. Training, consulting and testing services are provided to assist surface quality optimisation.

W Abrasives has also developed Surfium, a premium abrasive blasting media developed to deal with increasingly binding surface preparation specifications demanded by end-users in recent years. The high-performance grit, for applications in multiple industries, is designed for use in wheel-blasting machines.

Surfium is available in four sizes, depending on the profile



Surfium achieves a more consistent surface profile owing to its very narrow hardness range

depth required. Owing to its very narrow hardness range (+/- 1.5 HRC), the abrasive has a better lifetime compared with standard GL grit products, which leads to a decrease in consumption of about 10%, according to W Abrasives. Surfium also achieves a reduction by more than 15% of the residual dust particles generated during the abrasive blasting process.

The number, homogeneity and size of the microscopic surface peaks produced by abrasive-blasting impacts the mechanical and the corrosion resistance properties of coatings over long exposure times. WA 3D analysis of the surface profiles produced by using Surfium compared with those generated by a conventional GL product has shown that the former achieves a better result and a more consistent surface profile, due to its very narrow hardness range (+/- 1.5 HRC). W Abrasives says that Surfium is particularly suited to pipe and rebar surface preparation.