Moulding Compounds

Delivery Partner

VEC

Background

Moulding Compounds produce a limited range of raw thermosetting plastic materials in a range of colours, predominantly used in the manufacturing of Bowls. The company site consists of nine single-story industrial units spread over a single plot within a trading estate, with the thermosetting plastic production housed in two adjacent buildings.

The material mixing process has a time constraint between the initial and final mixing stages due to the use of glycerine that often dries out. Those responsible for these two actions are not currently located in the same unit, which can act as a communication barrier.

Some of the transfer of materials within the units is automated, generally via vacuum tubes, but there remains a great deal of manual processes, including transfer between units. For example, comprehensive clean-down activities are mandatory between batches of material to prevent cross-batch contamination of colour.

Challenge

During the extensive initial meeting that included a tour of the site, it became apparent that, although the primary concern was the layout of the production facility, improved guidance of electronic documentation control and mitigation against the challenges posed by the process requirements and factory layout could offer value for the company.

Solution

The support undertook and in-depth analysis of the current unit layouts, advising on the redistribution of plants. The first site visit was actioned by specialist academics, with a second site visit arranged to complete a scan of the premises.

A Trimble 3D scanner captured high-fidelity scans for creating a virtual version of the workspace and plant that can subsequently be interrogated and manipulated. The initial requirement was for the virtual models of existing machinery to be used to populate a representation of a new unit that was to be taken on by Moulding Compounds. However, this did not proceed following a change to assess the current unit layout to increase the efficiency of the available floor area.

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The LJMU teams also carried out research regarding the use of autonomous and semi-autonomous tracking of the production process, coupled with real-time monitoring. All findings were then presented to Moulding Compounds in a thorough report, highlighting and addressing potential improvements in monitoring and QA.

Impact

The release of useable floor space by the new company and the process of analysis and manipulation of scanned data has provided Moulding Compounds with options for optimising the layout of their existing unit. The specific aim was to enable the installation of the new plant to increase the efficiency of the production process. In addition, the data now exists to allow assessment of layouts in new premises should it be required, de-risking future decisions.

Although there is no current plan to upgrade the tracking and documentation control, the work undertaken identifies established and widely used technology. As such, the contents will retain their currency for some time and should provide a basis for addressing any aspirations to upgrade this area in the future, should they arise.

Future Vision

Moulding Compounds are looking to improve the use of their current facilities while looking for new premises. The scanning and analysis will provide further added value to this evolving process. Although there are no known timescales, this is a continuing focus, and the work undertaken will provide a good foundation for this activity should it be pursued.