USE OF ON-LINE IMAGE ANALYSIS FOR THE CONTROL OF CRYSTALLISATION

By

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ITECA SOCADEI HAS specialised in on-line analysis and since 2004 has been developing production control systems via image analysis.

These systems operate at two levels in the crystallisation workshop:

- at the level of the vacuum pans, 1st run, to ensure a correct crystallisation
- at the centrifuge output to warn operators and to correct production discrepancies.

Crystallisation analysis directly on the vacuum pans

Image analysis associated with a microscope is a very useful tool during the crystallisation phase because it enables the operator to permanently observe phenomena inherent in the vacuum pan process.

During critical phases, crystal growth is continuously analysed. An image of every vacuum pan is available in the control room and an alarm is triggered in case of misbehavior, providing the crystalliser operator easy monitoring of the process.

Each batch video sequence is recorded and stored in a computer enabling complete tracking of production.

Sugar image analysis after centrifuging

The second position that is strategic for the crystallisation workshop is the centrifuge output. Image analysis provides very significant added value compared to a simple colorimeter.

The capacity to display and analyse the product image in real time is used to point out the presence of brown sugar lumps and to detect specific dysfunctioning of the centrifuge.

Indeed, their size, shape and density in the image give substantial information about the root of the observed problem.

The introduction of image analysis at this stage of production achieves a major step forward by providing total tracking, not only with figures and graphs but also by recording video sequences of the observed problem.

This highly accurate post-analysis is the key to understanding the nature of the problem.