



Online Microwave Moisture and  
Density Information Systems

## Achieve 6-sigma quality level with MMA-3020 - Online microwave moisture measurement For rubber bales

The MMA-3020 performs online scanning of rubber bales while they move on conveyor belts. Scanning the entire volume of the bales, as opposed to sample or surface testing, provides highly accurate results as to the real dynamic range of material parameters.

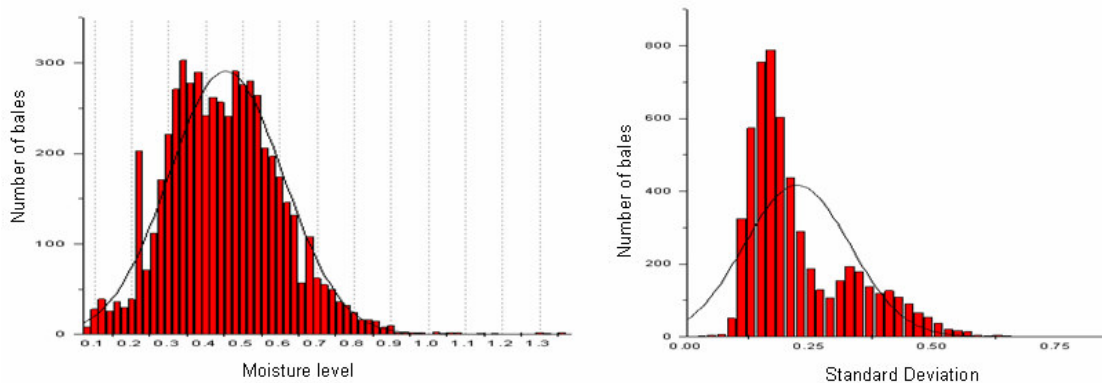
The MMA-3020 and its sophisticated software tools provide manufacturers with valuable data that can immediately be interpreted into practical process control decisions that will improve production efficiency, product quality and yield.

Data provided by the MMA-3020 includes:

- **Moisture level**
- **Density deviation**
- **Rubber bale profile**
- **Defect detection (wet spots, air bags, foreign objects)**
- **Real-time defect alert**
- **Defect location indication**

*The high accuracy and authenticity of results provided by the MMA-3020 improves process understanding and control significantly.*

### Moisture level and standard deviation results



All bales are scanned and the most accurate results on moisture level and standard deviation enable smart decision making based on real-time facts.

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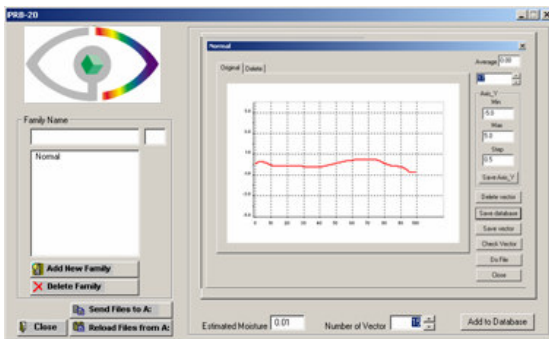


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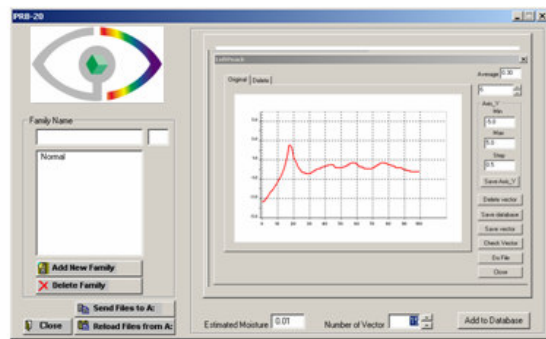
## Rubber bales profiling

PRB-20, Malcam's bale profile generator receives information from the MMA-3020 analyzer and produces easy-to-read graphic displays that show bale's condition in terms of uniformity. The system is fed with the customer's required parameters for analysis and requested alert situations.

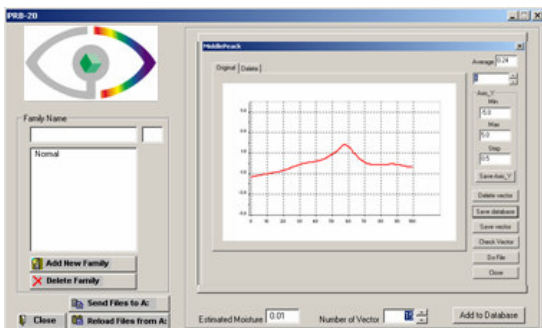
Following are examples of bales' profiles displays:



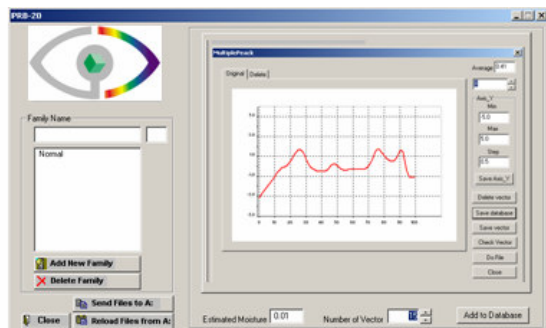
*Uniform Bale*



*Non-uniform bale – left peak*



*Non-uniform bales – middle peak*



*Non-uniform bale – multiple peaks*

## 6-Sigma Methodology

MMA-3020 helps the organization implement a rigorous and disciplined QA/QC methodology that uses data and statistical analysis to measure and improve its operational performance by identifying and eliminating "defects" in the manufacturing processes. The fundamental objective of this methodology is the implementation of a measurement-based strategy that focuses on process improvement and variation reduction in order to achieve a consistent and quality product.

***MMA-3020 provides the means to achieve 6-sigma quality product.***

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