Unfolding the Potential of Advanced Image Analysis

Case studies from the bioprocessing industry

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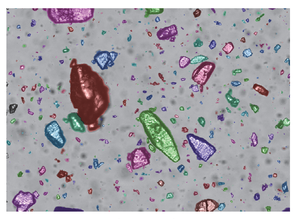
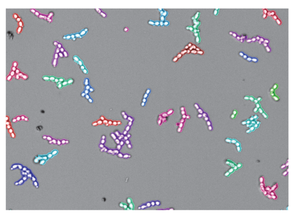
Challenge: Particles in productions

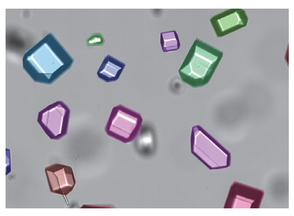
Outlining the importance of particles in bioprocessing



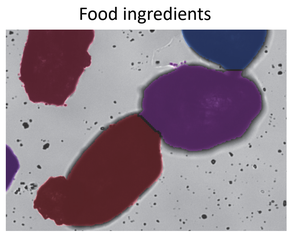
Food ingredients



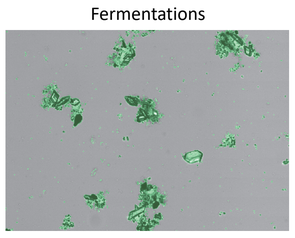
Fermentations



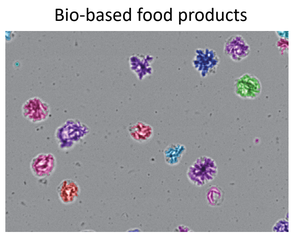
Bio-based food products



Powders



Filtration & flocculation

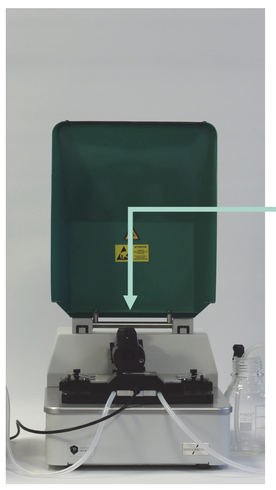


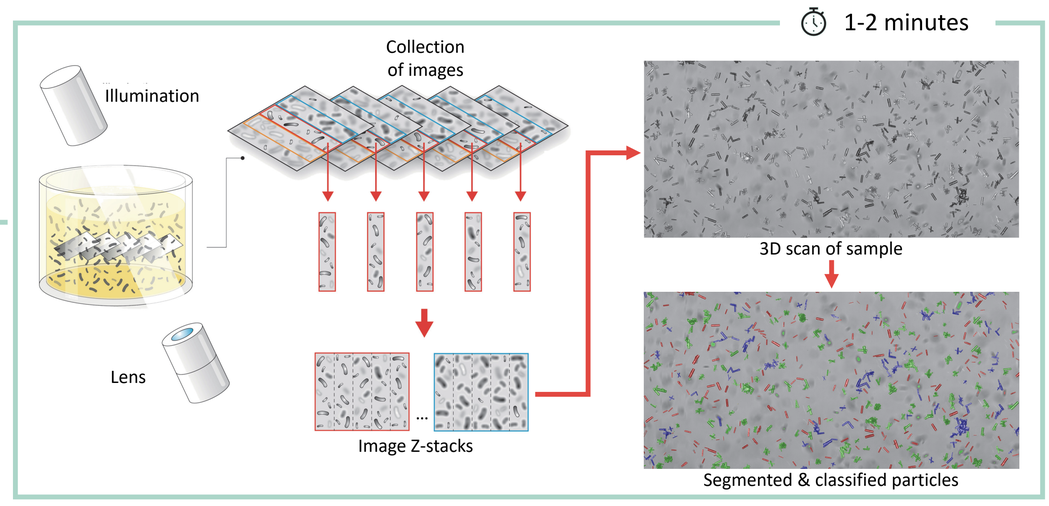
Fats & oils

- Many productions rely on particles as either being critical intermediates or as the final product
- Particle properties can significantly impact both final product quality and production efficiency

Method: Image-based particle analysis

Utilizing 3D scanning technology, image analysis & particle classification

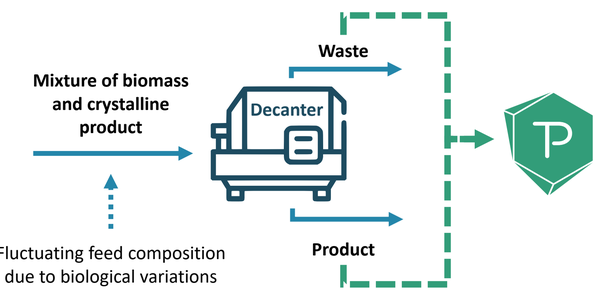


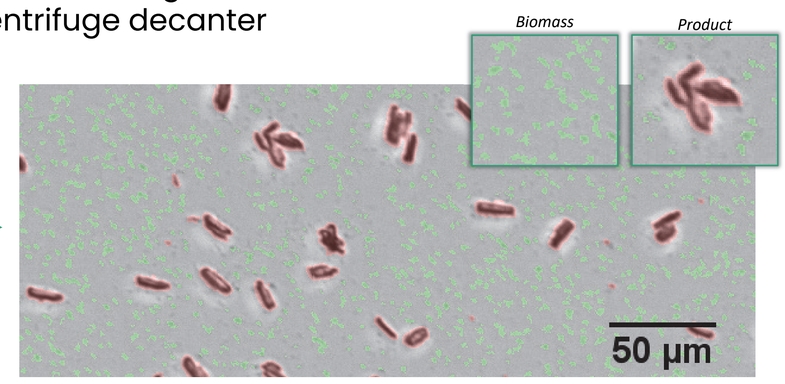


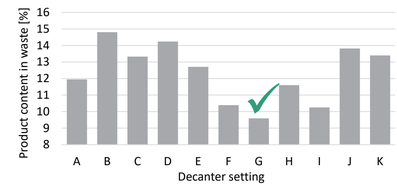
- Un-biased particle analysis capable of extracting information from each individual particle, including size, shape, and morphology
- Allows for measuring the sample composition by distinguishing between different particle types

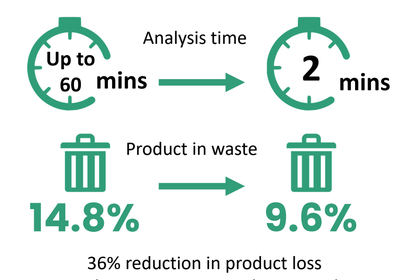
Biotech: Product clarification

Full-scale fermentation-based production of food ingredient
Result: 36% reduction of product loss in centrifuge decanter





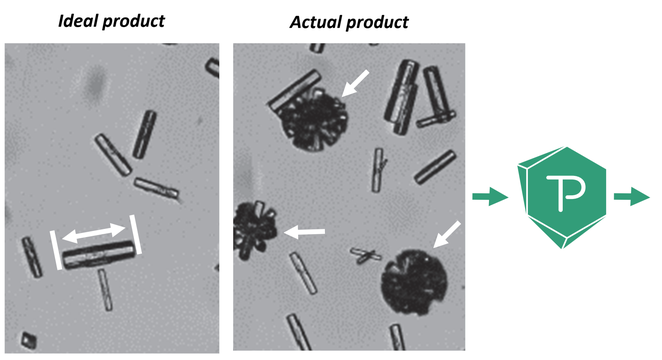


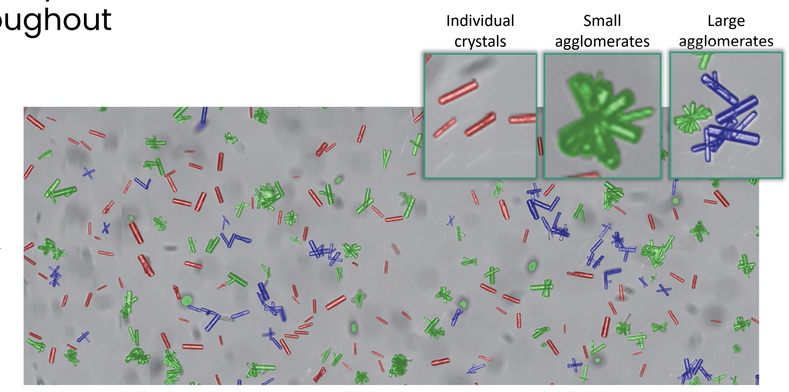


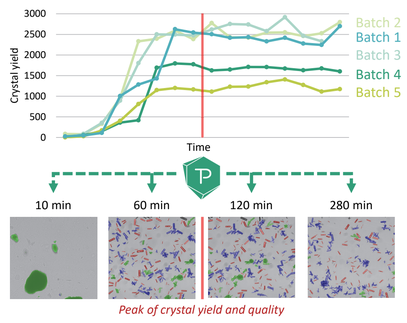
36% reduction in product loss without impacting product purity!

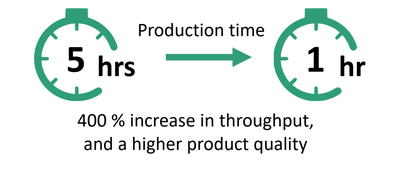
Pharma: Crystallization

Full-scale crystallization of rod-shaped API crystals
Result: 400% increase in crystallization throughout





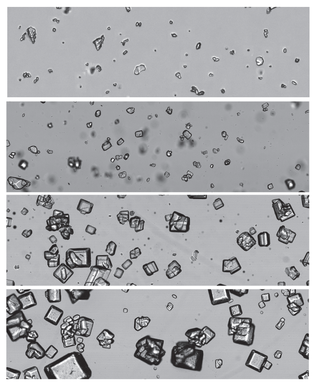




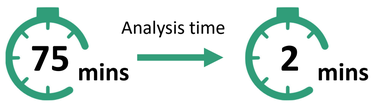
400 % increase in throughput, and a higher product quality

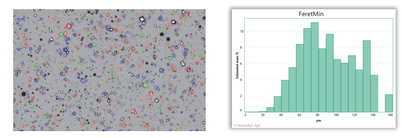
Food: Crystallization

Full-scale cooling crystallization in sugar refining
Result: Significant reduction in analysis time, allowing for process control

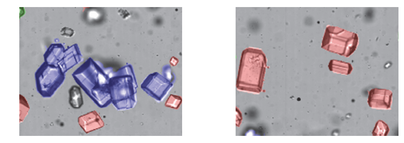


Online particle analysis solution for continuous monitoring of sugar crystallization





Critical information on agglomerates alongside size and shape parameters



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