

Measuring free water carryover

Background

Substantial quantities of water are used during the potato washing and slicing processes in potato chip production. Techniques are used to remove free water carryover (FWOC) before the potatoes enter the fryer. Any excess water remaining, along with moisture from the potatoes, is released through the stack during frying. Whilst current techniques help minimize the water carried from the washing and slice operations to the fryer, they are not entirely efficient, and improvements are being explored. It is estimated that FWCO can account for up to 10% of the heating load required for frying. Even a small reduction in the amount of water carried over could result in a significant decrease in energy requirement during frying, leading to reduced greenhouse gas (GHG) emissions. To achieve this, a reliable measurement technique is needed to accurately determine the amount of water carried over and optimize water removal before frying.

What we're looking for

We are looking for a robust and accurate measurement technique to quantify the amount of Free Water Carryover (FWCO) during potato chip production.

Our must-have requirements are:

- Operate either online (real-time) or offline (batch testing)
- Account for water on both the conveyor belt and the potato slices.

What's out of scope:

- Hyperspectral techniques, as these have already been investigated.

Acceptable technology readiness levels (TRL): Levels 3-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

- Sponsored research
- Co-development
- Licensing

Benefits:

- **Sponsored Research**
Development or execution of funding based on the proposal.
- **Expertise**
Access to Subject Matter Experts (SME) who can provide specialized knowledge in relevant areas.
- **Data**
Access to technical information and data that could aid in developing the solution.
- **Facilities and Services**
Access to R&D facilities. Ability to run live trials funded by PepsiCo at PepsiCo R&D production facilities.

Who we are

PepsiCo products are enjoyed by consumers more than one billion times a day in more than 200 countries and territories around the world. PepsiCo's product portfolio includes a wide range of enjoyable foods and beverages, including many iconic brands that generate more than \$1 billion each in estimated annual retail sales.

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