Prediction of Swelling and Pasting Behavior of Starch Suspensions

A mathematical model has been developed to predict and optimize starch properties, enabling the precise fine-tuning of textures in food products and non-food applications like paper coatings and paint.

Starches are used in a variety of food products but their swelling and pasting properties have not been well characterized. The prediction of starch properties would enable the fine-tuning of food textures.

Researchers at Purdue University have developed a mathematical model for the swelling of starch granules when heated. This model was used to characterize the texture of starches such as maize, rice, and potato and predicted the texture for starches under different processing conditions. The application for this technology include in the optimization of food textures such as in canned soups, gravies, and baby foods, as well as adjustment of non-food products such as paper coatings and paints.

Advantages:

-Prediction and optimization of starch properties

Potential Applications:

-Food products

-Paper coatings and paint

TRL: 3

Intellectual Property:

Provisional-Patent, 2019-02-20, United States | Utility-Gov. Funding, 2020-02-19, United States

Keywords: Starch properties, starch swelling, starch pasting, food texture optimization, mathematical model, food processing, viscosity prediction, granule gelatinization, paper coatings, paint adjustment

Technology ID

2019-NARS-68551

Category

Chemicals & Advanced Materials/Coatings, Adhesives & Sealants

Materials Science & Nanotechnology/Advanced Functional Materials

Authors

Gnana Prasuna Desam

Jinsha Li

Ganesan Narsimhan

Vivek Narsimhan

Further information

Aaron Taggart

adtaggart@prf.org

View online