

POSTER SUMMARY

A VIEW INTO THE BOILING BEHAVIOUR OF MASSECUITE IN A PAN TUBE

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Abstract

The specific boiling characteristics of massecuite have, until now, never been visualised except via models created from mathematical assumptions. The limitation of vacuum pans is that the sight glass on the boiling chamber allows viewing into the top of the pan tube plate, but not into the tubes where the boiling occurs and so the actual boiling remains unseen.

An experimental test rig was created for the purpose of visualising the boiling of massecuite. This test rig is a batch vacuum pan with a single tube that is square in cross-section. The one side of the tube is a glass pane to facilitate the observation of the boiling process. The rig works using natural convection in order to create the cyclic movement up through the tube and down the down-take.

This poster documents the observations of the boiling process during laboratory trials, the results of which will be used to test the assumptions used in models describing the boiling behaviour of different massecuites in pans. Of particular interest is how non-sucrose in the massecuite influences its boiling behaviour and so may contribute to the understanding of difficulties experienced in boiling massecuites near the end of the season.

Due to the fact that typical massecuite is highly coloured and boiling activity will be difficult to see, a synthetic non-coloured syrup with the same characteristics as massecuite was used. The poster records and documents the boiling behaviour of the synthesised syrup in the test rig.

Keywords: hard-to-boil massecuite, pan, polysaccharide, boiling, viscosity, synthetic