Process Effect on Water Droplet Size Variation in Fat Spreads

By

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ABSTRACT

Fat Spreads are emulsions that can be easily affected by microorganisms due to the high nutrient content and relatively high water activity. If fat spreads water droplets sizes are too large it affects directly to the quality of the product by causing microorganism attacks, separation of emulsion resulting changes in mouth feeling and product consistency.

Process effect can be a direct cause for variation in water droplet size. Though the production line has a schedule to maintain required condition, practically it is difficult to achieve necessary conditions. Therefore this research was targeted to study the process condition, their variations and their effect on water droplet size of the final product of a fat spread plant

Water droplet sizes were measured using Brucker NMR analyzer and temperatures of the special places in the plant, rpm of some of the pumps, crystallizer and chill tubes, percentage of moisture, percentage of NaCl and the serum pH were determined.

Ninety five (95) samples from fat spreads plant was analyzed and readings were gotten. No significant changes were observed in Percentage of moisture content, percentage of NaCl, Serum pH and Temperatures and their effect on water droplet sizes were minimum. The sizes of water droplet are directly affected by the frequency of crystallizers but not Feed pump and Product pump frequency. RPM values of crystallizer 1 and 2 were changed to 125 and a fine emulsion was achieved with water droplet sizes less than 3.5 um. Though production plant was not given permission to adjust to Research requirement this conclusion was got from studying the normal manufacturing process.

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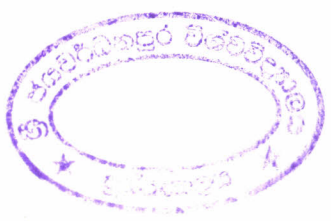

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