

Thermal **characterization** of chicken fat crystallization during dry-fractionation

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Dry fractionation is currently used to process a broad range of fats and oils with the aim of producing fractions with unique rheological properties. This process is **however** still in the rudimentary stage and few studies have focused on gaining insight into the mechanisms involved.

Several heat transfers occurred simultaneously during the cooling step. Heat **gains** result **from** the crystallization reaction while heat losses **are** due to the release of this heat and lowering of the fat temperature via the cooling system.

Thermal analysis of the crystallization reaction was done using a laboratory apparatus with temperature measurements supplemented by thermal characterization of the stearin fraction **through** differential scanning calorimetry.

A thermal model was developed **that** takes all heat transfers into account and, associated with an original experimental approach, enables **one** to assess the extent of crystallization heat release during the process.

Finally, the potential of the model to accurately simulate the crystallization kinetics was evaluated. Indeed, this tool for predicting the progress of the crystallization reaction **may** be useful for enhancing the fractionation process.