

12-1-2017

# Reducing Cycle Time in Frozen Gel-Bag Production

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## Recommended Citation

Thompson, Christian; Reichert, Dustin; Paris, Dylan; Lu, Guangyu; and Winch, Mathew, "Reducing Cycle Time in Frozen Gel-Bag Production" (2017). *TSM 415 Technology Capstone Posters*. 7.

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## Reducing Cycle Time in Frozen Gel-Bag Production

Client: PurFoods, Ankeny, Iowa

### Problem Statement

- PurFoods, estimates they will use two million gel-bags in the fiscal year to place in their meal packages. Currently the cycle time to freeze gel-bags in a -10°F freezer is about 24 hours, causing issues with time needed for production.

### Scope

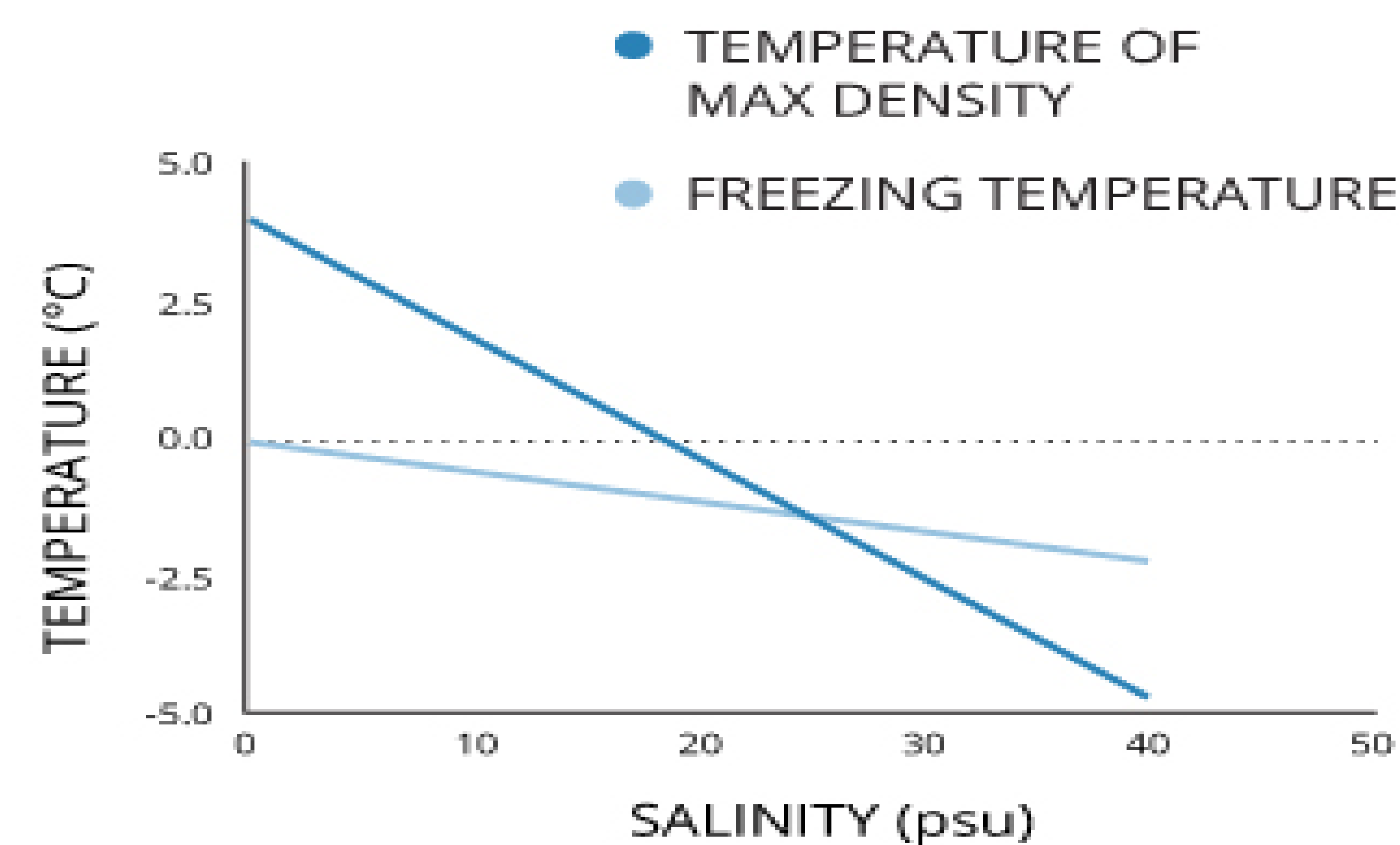
- Task is to reduce the cycle time required in order to completely freeze the gel-bags

### Objective(s)

- Reduce gel-bag freezing time by 25%.
- Reduce inventory costs associated with storing gel-bags
- Reduce footprint required to store in cooler

### Constraints

- Gel-bag size cannot be changed
- Dimensions of shipping box cannot be altered
- Solution must be edible
- Production must not be slowed



### Methods

- On site testing of various proposed solutions with infrared temperature sensor
- Data logging and analysis of proposed solutions
- Cost analysis of each proposed solution

### Proposed Solutions

- Freeze tunnel
- Salt water added to gel-bag
- Metal racks instead of plastic
- Better air circulation within freezer
- Nitrogen Bath
- Other food safe chemical options

### Major Outcomes

- Reduction of freezing time
- Reduction of on hand gel-bag inventory
- Cost savings from gel-bag freezing reduction
- Dimensions of footprint reduction within the freezer

### Benefit to Client

- Allows more flexibility in matching market demands for their products
- Creates a more efficient means of production