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Ph.D. fellowship

2024-2027



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Process – Structure - Functionality

Keywords

Adhesion  
Cheese matrix  
Cleaning  
Curds  
Thermoplastic surfaces

# Investigation of the key parameters responsible for sticking between molds and cheeses during production

## Socio-economic context

- Most of cheese industries are affected by occasional problems of cheese sticking to molds. In some cases, up to 50% of cheeses can be affected during each fabrication.
- Solutions found by the cheese industry are often empirical and sometimes ineffective, leading to significant cheese losses (torn-off, broken cheeses, etc.), and loss of time and yield on production lines.

## Scientific context

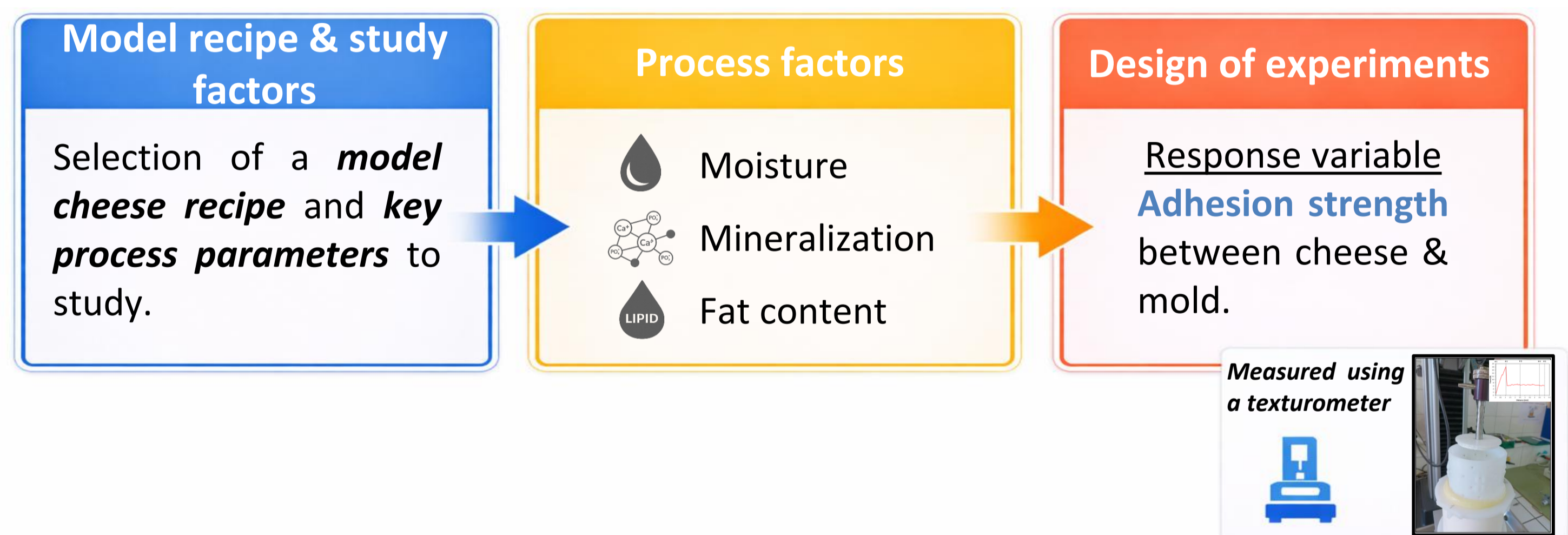
- Cheese sticking to thermoplastic molds remains under-studied in the literature.
- This multi-factorial phenomenon involves complex interactions between:
  - ➔ Curd composition and cheese-making parameters,
  - ➔ Surface properties of thermoplastic molds,
  - ➔ Cleaning processes.

## Research question

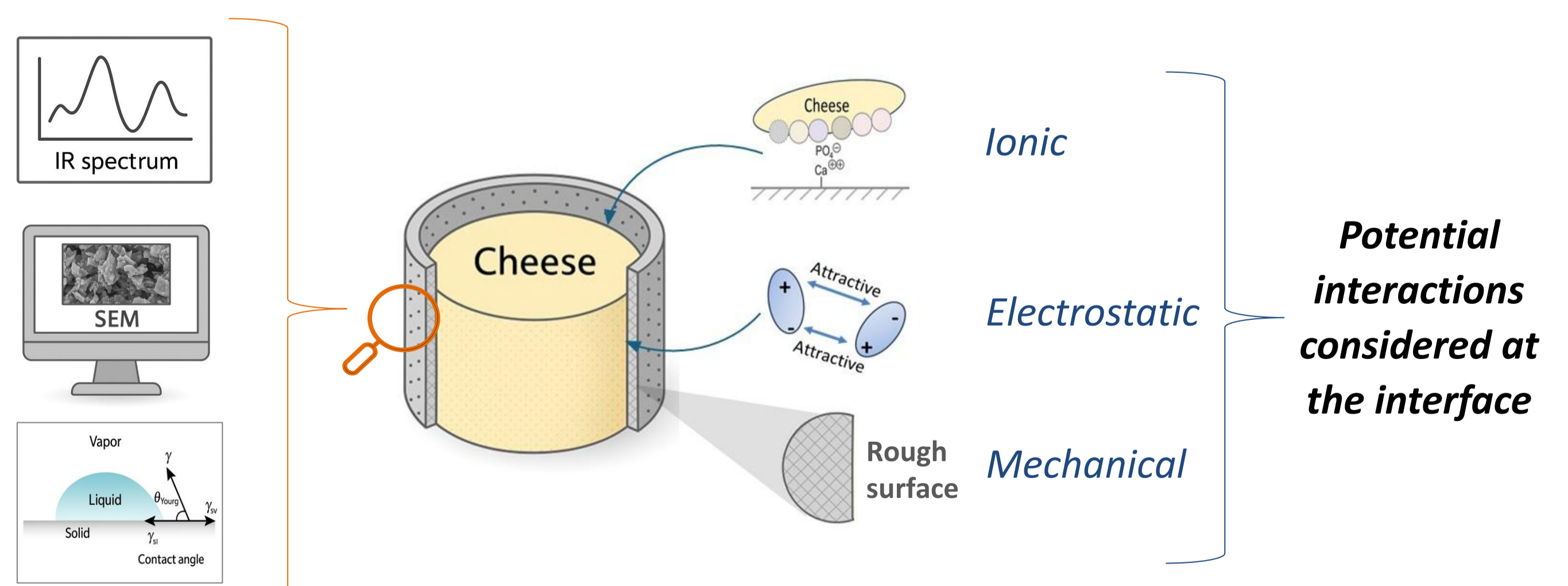
How do the surface properties of molds (*roughness, chemistry, aging*) and curds characteristics affect sticking during cheese-making, and how can they be controlled to limit adhesion/sticking ?

## Expected results

- Determine the interaction properties that can occur between the surface of curds and the surface of thermoplastics by :
  - Determining curds constituents, as well as cheese-making parameters that may be involved in the sticking phenomenon.



- Characterizing the physical and chemical properties of mold surfaces.



- Understand the impact of mold aging and cleaning products by placing identified molds in the cheese production line and removing them at defined intervals for analysis.

## Perspectives

- Advise cheesemakers on cheese-making parameters that do not lead to sticking.
- Advise on effective and non-sticky cleaning procedures for the cheese industry.
- Identify plastic surface conditions that do not lead to cheese sticking.

Funding

SERVI DORYL CHEESE MOULDS EXPERT

anrt ASSOCIATION NATIONALE RECHERCHE TECHNOLOGIE

RÉGION CENTRE VAL DE LOIRE

Collaborators

femto-st SCIENCES & TECHNOLOGIES

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