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So What Does a Chemical Engineer know about Bread, Milk, and Cheese?

By

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Chemical Engineer

- **My interview by Wim Mandersloot!**
 - Convert materials of low value to products of high value
 - Do you play bridge?
- **Unit Operations**
 - Heating, cooling, filtration
 - “reactors”- fermentation
 - Non-Newtonian fluids and particle dynamics (colloids)
 - Process control



Food Processing

- Plate heat exchangers
 - Pasteurisers
 - Cookers
 - Evaporators
 - Heat recovery
- Pipe system design
 - Non-Newtonian fluids e.g. sorghum beer mash
 - Very viscous fluids e.g. fruit juice concentrates



Food Safety

- **Process Control for Food Safety**
 - Temperature and time graphs - microbiological
 - Cooling of viscous and non-Newtonian fluids to “safe” temperature zone
 - Moisture content control
- **Process Control in Production**
 - Dough rising - CO₂ production
 - Mixer design, mixing efficiency for dough etc



Bread, Milk and Cheese

- Most engineers know breweries use Chem Eng's
- Chem Eng essential to milk production and shelf life
- Cheese is a complex product undergoing several processes and using several different unit operations – contamination control essential
- Bread – you figure it out!



Chemical Engineers in Food?

- Without Chemical Engineers many food production processes would be inefficient and likely unsafe
- The same principles which apply to minerals processing, fuels processing and other well known chemical processes apply to foodstuffs, perhaps more refined
- Consider pasteurising an egg!



Attorneys in Food?

DON'T ASK!



Questions?

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