Labster Modules 5 & 6

BMES Cell Team

Spring 2021

Labster Schedule

	Mon	Tues	Wed	Thurs	Fri
Week 1 (3/29-4/2)					
Week 2 (4/5-4/9)		Module 9: Drug Delivery Methods	**Labster Modules 5-6 (Homogenization and Cell Culture Basics) Assigned**	Independent Projects (Finalize Independent Project Groups)	
Week 3 (4/12-4/16)		Module 10: Wet Lab Applications to Medical Devices	**Labster Modules 7-8 (RNA Extraction and CRISPR) Assigned**	Independent Projects (Finalize Independent Project Topics)	

- **Module 5: Homogenization**
  - Have not covered in Cell Team Modules
  - Supplemental Slides in this Powerpoint
- **Module 6: Cell Culture Basics**
  - See Cell Team Modules 4 & 5, Protocol Walkthrough 3
- **Modules Due Week 8**
  - Submission link for notes under “Labs” tab on Cell Team site

Homogenization

BMES Cell Team

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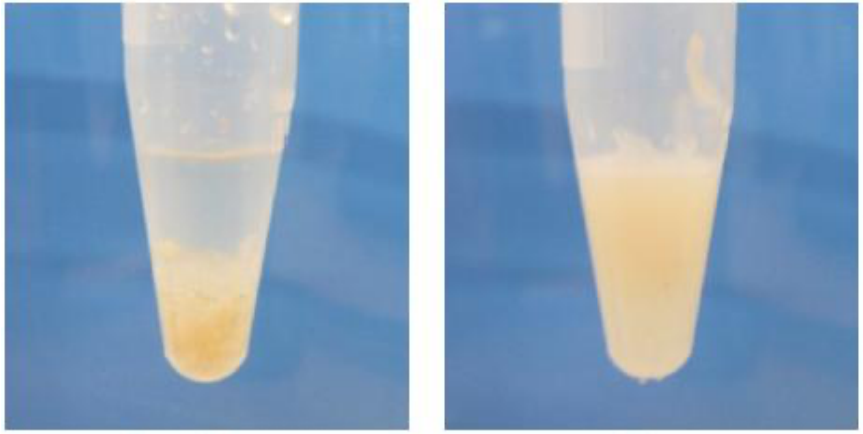
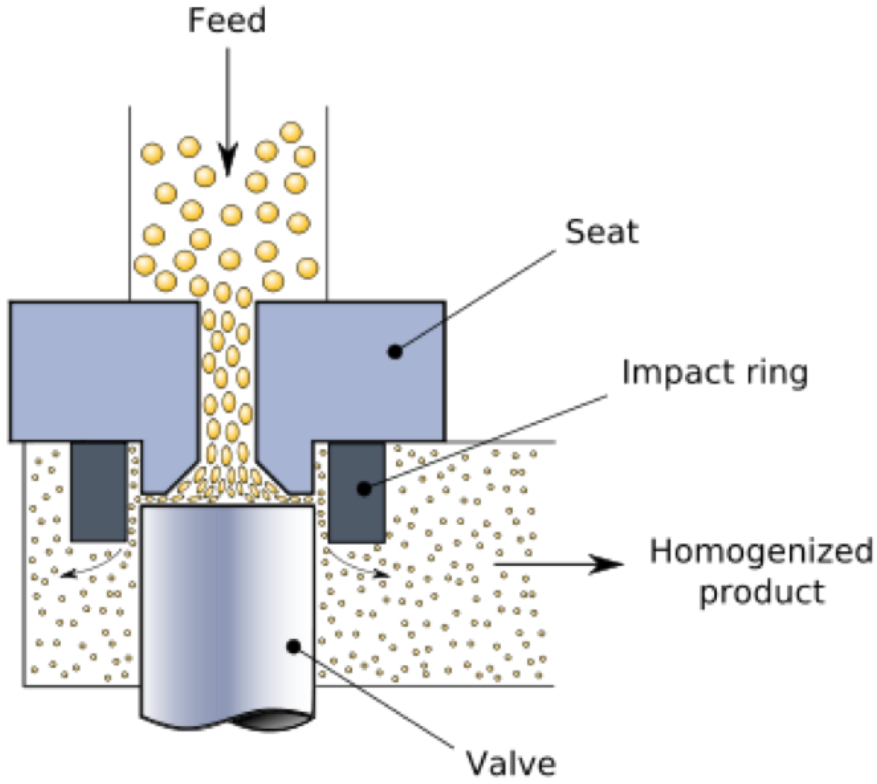
Introduction to Homogenization

- **Definition:** Homogenization is the process of making a mixture from two non-soluble liquids.





- One liquid is made into very small droplets that are re-suspended into the other liquid

https://homogenizers.net/pages/p-homogenization-of-drosophila-larvae

Purpose of Homogenization

- Create a stable emulsion where the different fluids will not separate out from each other

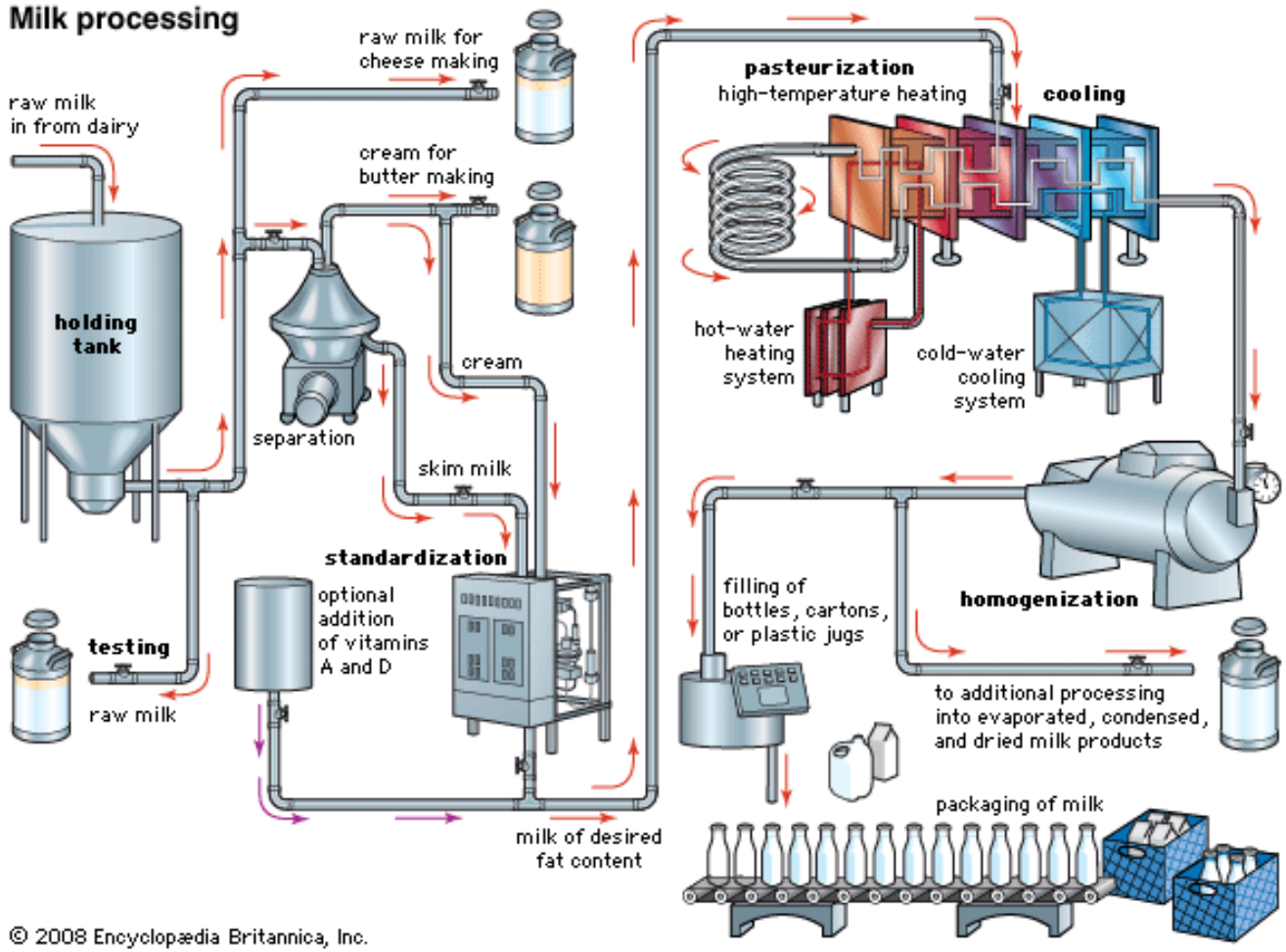
- Common applications:
    - Milk
        - Prevents the formation of a fatty cream layer
    - Soda
        - Prevents the separation of the different ingredients

https://homogenizers.net/pages/p-homogenization-of-drosophila-larvae

Video: Homogenization Overview

https://www.youtube.com/watch?v=Ed0K5Cjbmr0

Homogenization of Milk



- Fat particles are made into a uniform size and resuspended in the milk mixture at different concentrations for different types of milk

https://www.pinterest.com/pin/130956301651569265/

Purpose of Milk Homogenization

- Prevents milk fat from separating and rising to the top
- Cream layer doesn't form
- Allows for different fat concentrations in milk
- Increases stability and shelf life of cultured milk products
- More aesthetically pleasing
    - Whiter milk
    - Lack of chunks → Better mouth feel

https://www.slideshare.net/mariamehmood712/homogenized-milk

Video: Homogenization of Milk

https://www.youtube.com/watch?app=desktop&v=rwSW8NfsnjI