



Equipment III Mixers



Course Objectives

1. Describe the purpose and function of a mixer.
2. Describe how fluid properties affect fluid mixing.
3. Describe typical applications of mixers in chemical processing.
4. Distinguish between the different types of mixers.
5. Identify typical operating parameters associated with controlling a mixer.
6. Describe common performance issues related to mixers and their causes and indicators.



Key Terms (Define the following)

dynamic inline mixer - _____

shear - _____

miscibility - _____

surfactant - _____

solubility - _____

static mixer - _____



Principles

Mixers

Agitated Tank	Inline
Stirred tank	Static
Jet/Eductor	Dynamic
Ribbon	Other
Screw Conveyor	
Rotating Drum	



Questions

1. List five applications for mixing other than mixing miscible liquids.

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

2. Describe how temperature affects the viscosity of a fluid.

3. Describe how shear can affect viscosity in a non-Newtonian fluid.

4. What is the purpose of a surfactant?

5. List three mechanisms for agitating a tank.

- 1) _____
- 2) _____
- 3) _____

6. Describe an application where axial flow is preferred.

7. What is the purpose of baffles in a stirred tank?

Describe two methods for heat transfer in a stirred tank.

- 1) _____

- 2) _____

8. List common causes for poor mixing and over mixing.

Poor Mixing

Over Mixing

_____	_____
_____	_____
_____	_____
_____	_____

9. What is the difference between a static inline mixer and a dynamic inline mixer?

10. Why is feed control to an inline mixer important?

