

SI Pharmacy Technician - Full Discipline Demo

Compounding - Emulsions

Final Report - Answer Guide

Institution	Science Interactive University
Session	SI Pharmacy Technician - Full Discipline Demo
Course	SI Pharmacy Technician - Full Discipline Demo
Instructor	Sales SI Demo

Test Your Knowledge

Classify each statement about emulsions as either true or false.

⚡ An emulsion is composed of two immiscible solids and an emulsifier.

⚡
The liquid that makes up the greater portion of the emulsion is called the dispersed phase.

⚡
The two most common types of emulsions are oil-in-water (abbreviated as o/w) and water-in-oil (abbreviated as w/o).

⚡ Emulsions are used exclusively for pharmaceutical purposes.

True

False

1

2

Correct answers:

1 An emulsion is composed of two immiscible solids and an emulsifier.

The two most common types of emulsions are oil-in-water (abbreviated as o/w) and water-in-oil (abbreviated as w/o).

2

The liquid that makes up the greater portion of the emulsion is called the dispersed phase.

Emulsions are used exclusively for pharmaceutical purposes.

Classify each statement based on whether it pertains to the wet gum method or the dry gum method.

⚡ Requires first slowly adding the water to the emulsifier in parts, then slowly adding the oil in parts as well. ⚡ Also called the continental method. ⚡ Also called the English method.	
⚡ Requires first triturating the oil and the emulsifier together, then adding the water all at once. ⚡ Involves the creation of a mucilage.	
Wet Gum Method	Dry Gum Method
1	2

Correct answers:

1

Requires first slowly adding the water to the emulsifier in parts, then slowly adding the oil in parts as well.

Also called the English method. Involves the creation of a mucilage.

2

Also called the continental method.

Requires first triturating the oil and the emulsifier together, then adding the water all at once.

Exploration

The boundary that forms between these two phases is called the _____.

- ☐ interface ✓

☐ dispersed phase

☐ continuous phase

The dry gum method is quicker and easier to perform than the wet gum method, but the wet gum method results in a more stable emulsion.

☒ True



☐ False

Exercise 1

In this exercise, did you make a water-in-oil or an oil-in-water emulsion? Explain your answer.

What are the advantages to producing an emulsion using the dry gum method?

What would have happened if you had tried to perform this exercise without the gum acacia?

Photo 1: Dry Gum Emulsion
(SAMPLE ANSWER BELOW)





Exercise 2

In this exercise, did you make a water-in-oil or an oil-in-water emulsion? Explain your answer.

What are the advantages to producing an emulsion using the wet gum method?

In a pharmacy, what would be your next step after creating the primary emulsion?

Photo 2: Wet Gum Emulsion
(SAMPLE ANSWER BELOW)



Competency Review

Water-in-oil emulsions will not leave a greasy trail and can be easily washed away with water.

☐ True

☒ False



_____ is a commonly used emulsifier.

☐ Oil

☐ Water

☒ Gum acacia

☐ Mucilage



In the wet gum method, the homogenized mixture of water and emulsifier is called the primary emulsion.

☐ True

☒ False



An emulsion is formed when the mixture becomes creamy white and produces a slight crackling sound when triturated when performing both the dry gum and the wet gum methods.

- ☒ True ✓
- ☐ False

When using the dry gum method, the water was added quickly all at once.

- ☒ True ✓
- ☐ False

The _____ method was the faster method of producing an emulsion.

- ☒ dry gum ✓
- ☐ wet gum
- ☐ neither

When using the wet gum method, you mixed the oil in gradually but mixed the water in quickly and all at once.

- ☐ True
- ☒ False ✓

When using the wet gum method, the oil is added gradually but should be triturated with a strong, fast pace.

- ☒ True ✓
- ☐ False

Extension Questions

In addition to oil-in-water and water-in-oil emulsions, there are also double emulsions called water-in-oil-in-water (w/o/w or WOW) and oil-in-water-in oil (o/w/o or OWO). WOW's are more commonly used because food and supplements are usually composed of a continuous aqueous phase. WOW's have

recently been receiving enhanced news coverage due to their ability to potentially reduce the amount of fat in common foods.

Based on what you already know about emulsion creation, how do you think a WOW emulsion is made. Explain your reasoning.

(SAMPLE ANSWER BELOW)

Student responses should include a stepwise procedure that reflects an elongated o/w procedure. At some point, students should indicate that water is added to the oil to create an intermediate emulsion. This intermediate emulsion is then added to water to create the final emulsion. Other steps such as including an emulsifying agent should also be mentioned.