Practical Physical Pharmacy lab4/ Three Component Systems

Three Component Systems

- Procedure:

1. Place 20 mL of water in conical flask. Then Add 1-butanol to the water drop by drop until the turbidity appears and remains for 5 min. Record 1-butanol volume required .
2. Place 20 mL of 1-butanol in a 50 mL conical flask. Add water to the 1-butanol drop by drop until the turbidity appears and remains for at least 5 min Record water volume required .
3. Place 20 mL of 1-butanol and 5 ml of water in a 200 mL conical flask. Add acetic acid drop by drop until the turbidity disappears. Record the volume of acetic acid added.
4. Add an additional 5 mL of water to the mixture . Again treat with acetic acid until the turbidity disappears. Again record the volume of acetic acid added .

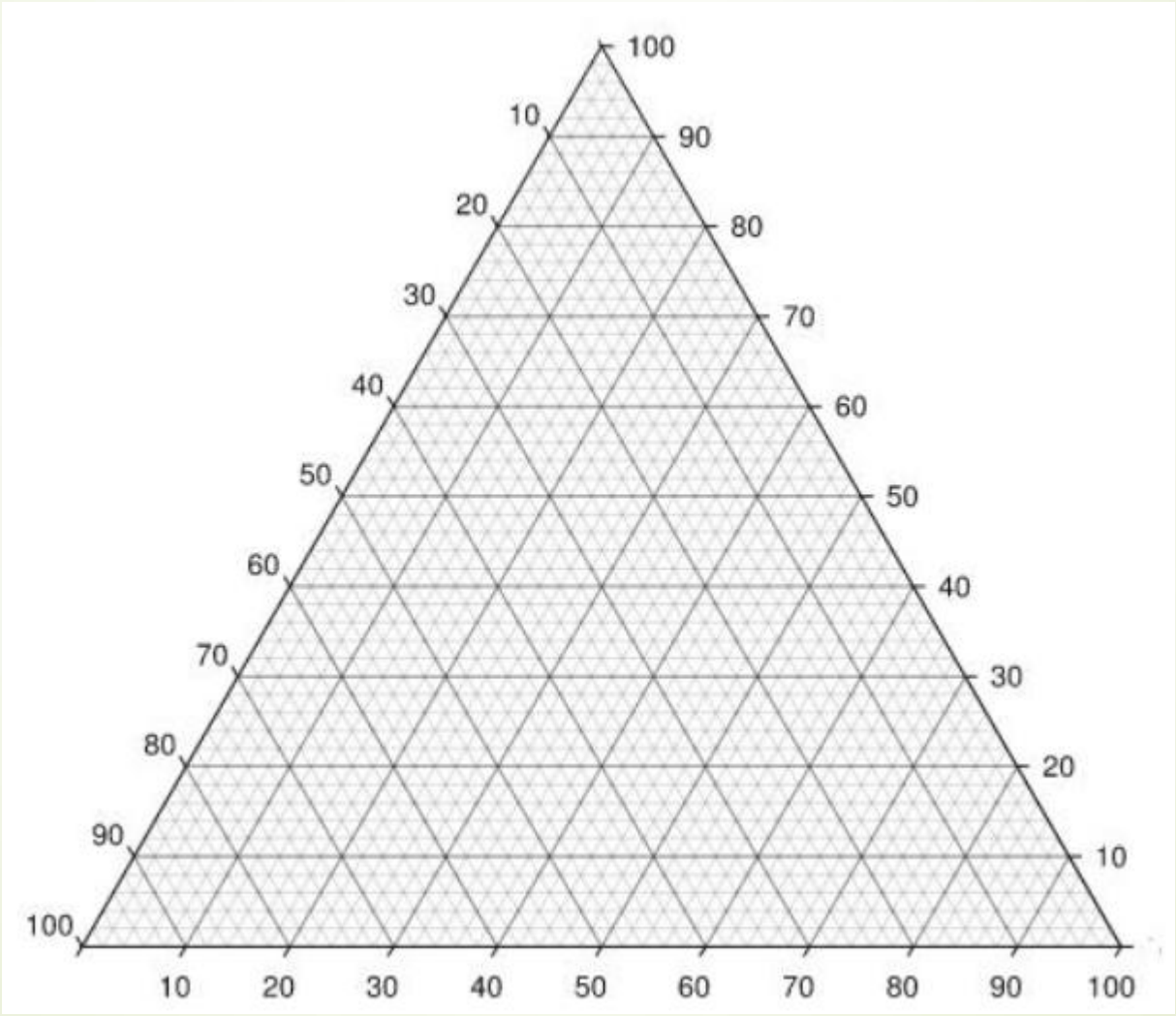
- 7. Continue adding water in 5 mL each time and treating with acetic acid until a total of 30 mL water has been added. After this add 10 mL each time until a total of 110 mL of water has been added. Record the volumes of acetic acid added at each stage, and fill the following table:

References

Butanol ml	Water ml	Acetic ml		Butanol g	Water g	Acetic g		Butanol w/w%	Water w/w%	Acetic w/w%
20		No		( )*p	( )*p	( )*p				
	20	No								
20	5									
20	10									
20	15									
20	20									
20	25									
20	30									
20	40									
20	50									
20	60									
20	70									
20	80									
20	90									
20	100									
20	110									

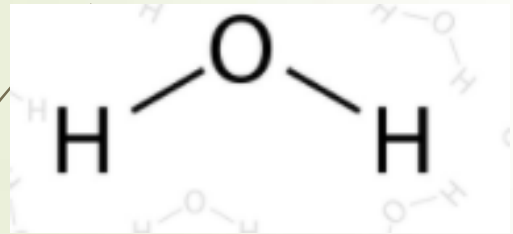
Ternary system diagram

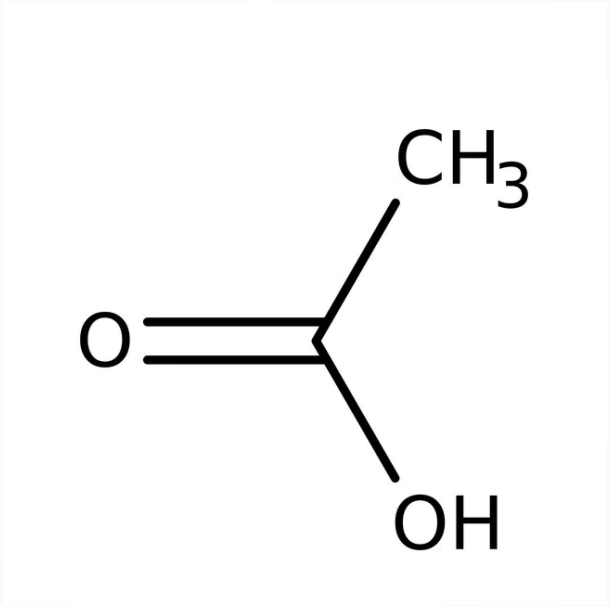
- B

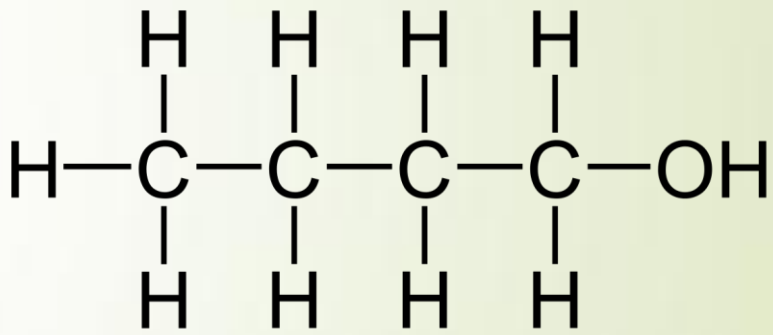


Q/How Acetic acid is increasing the miscibility between Water and 1-Butanol?

- Q

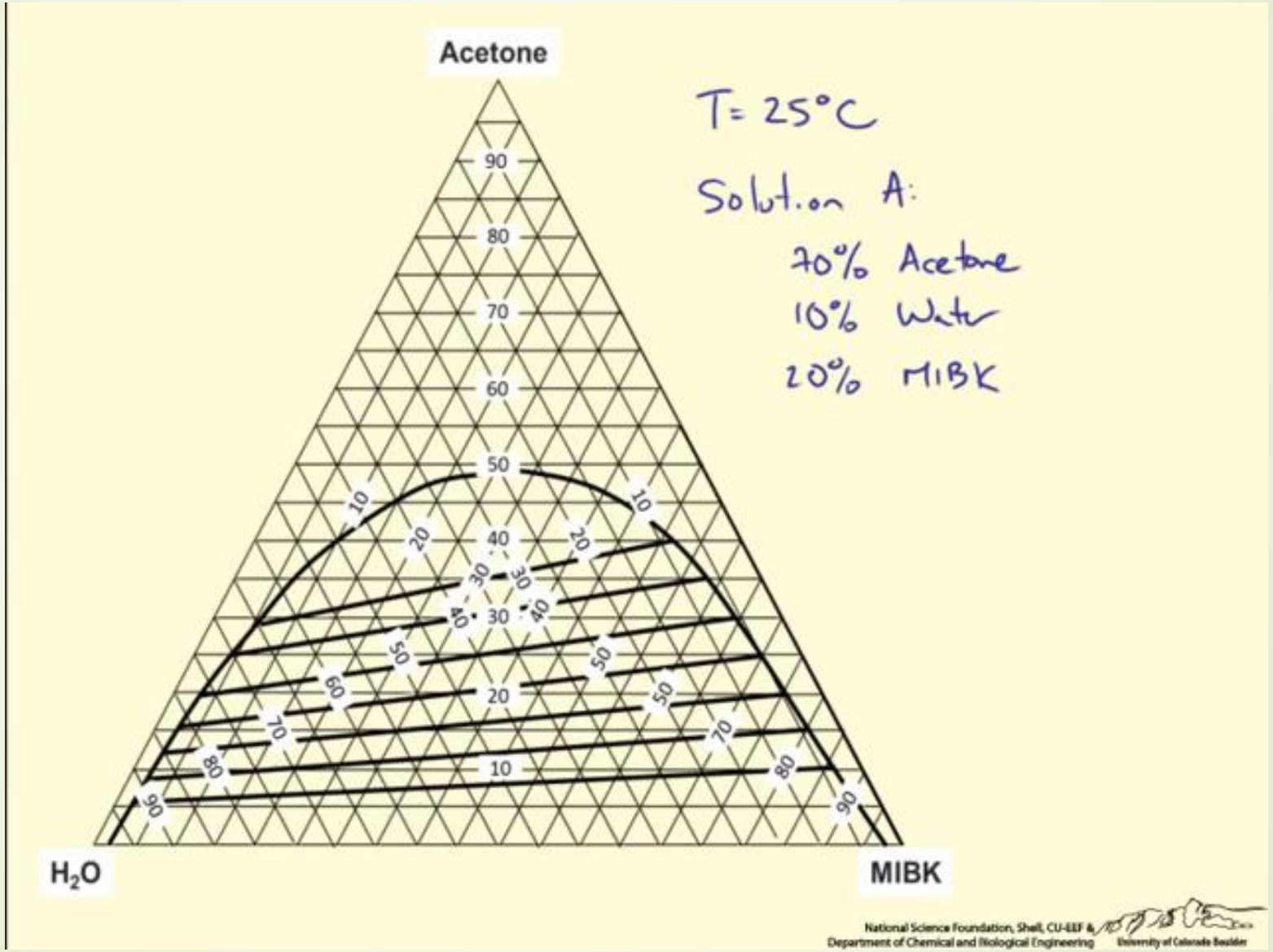






- Because its hydrophobic portion interacts with the butanol, while its hydrophilic portion interacts with water molecules

How to use ternary diagram



References

- **Martins, Physical Pharmacy and pharmaceutical sciences, 6th Ed**