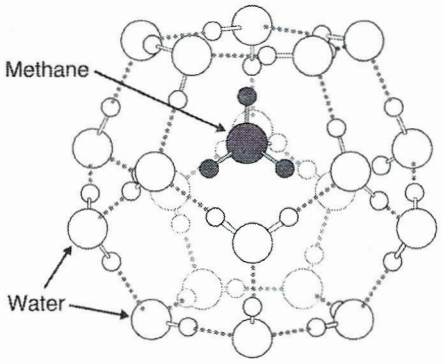
**Chemistry 161a – Fall 2018** **Chapter 10 Quiz**

+3/3

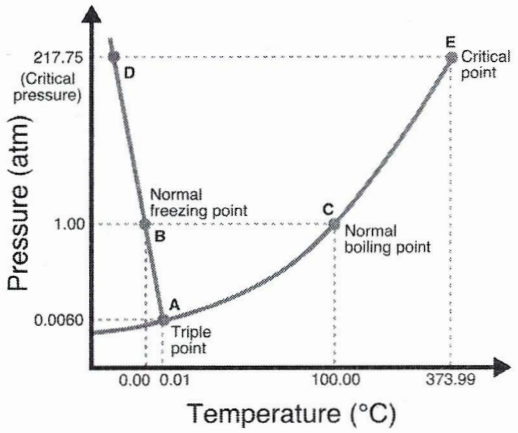
Name: Hannah Forbes

Consider methane clathrates (pictured below). The incorporation of methane in ice results in thermodynamically favorable clathrate formation.

METHANE CLATHRATE




PHASE DIAGRAM FOR WATER




Given the phase diagram of water above, predict how the line A–D (that represents the equilibrium between the solid and liquid states of water) would shift. Explain your answer.

Clathrate formation is more stable. Therefore, ice is more stable, resulting in the line A-D shifting to the right. ✓

(due to stronger forces between the atoms in the molecules. it would require more energy (higher temperature) to change the state of clathrate from solid to liquid)

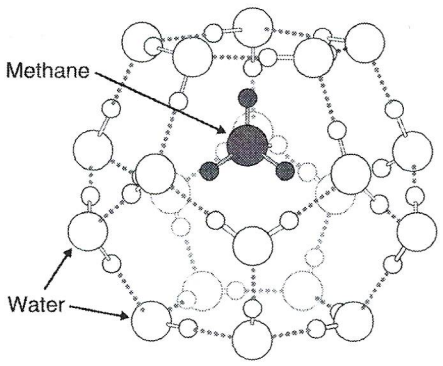
* Great Answer!

+3/3

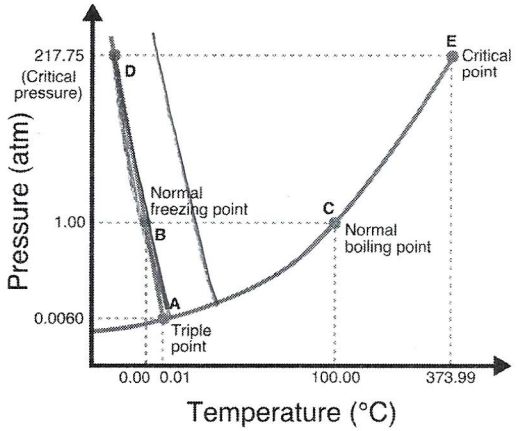
Name: Ariel Ulrich

Consider methane clathrates (pictured below). The incorporation of methane in ice results in thermodynamically favorable clathrate formation.

METHANE CLATHRATE




PHASE DIAGRAM FOR WATER




Given the phase diagram of water above, predict how the line A–D (that represents the equilibrium between the solid and liquid states of water) would shift. Explain your answer.

Methane clathrate mainly has (London) dispersion forces. Line AD would shift to the right because stronger IMFs (more dispersion = stronger IMFs) require more (↑) temperature for phase changes like melting (s→l) point. ↑ point B.

↑ In fact, the entire phase diagram would shift to the right!

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Name: Erin Gerardo

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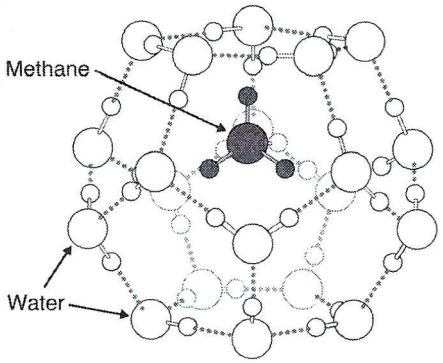
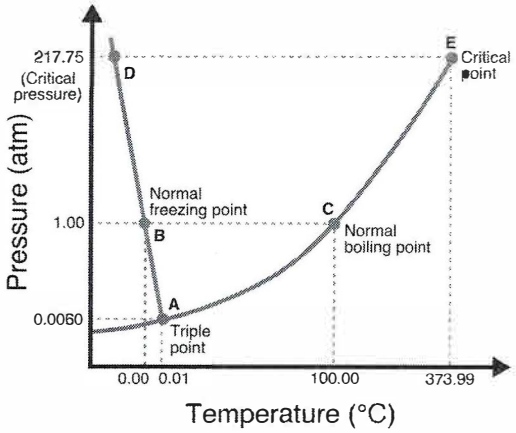
METHANE CLATHRATE




PHASE DIAGRAM FOR WATER




Given the phase diagram of water above, predict how the line A–D (that represents the equilibrium between the solid and liquid states of water) would shift. Explain your answer.

It would shift to the right because since there are more intermolecular forces it would be harder to separate molecules meaning it would take more temperature to change the phase from solid to liquid

+3/3

Name: Katie Sierchio

Right: the added methane changes the intermolecular bonding & adds more forces to the solid phase of ice. Thus, this increases the melting point so the diagram shifts right — a greater temperature (amount of energy) is required to interrupt the forces holding the mixture together in the solid phase.

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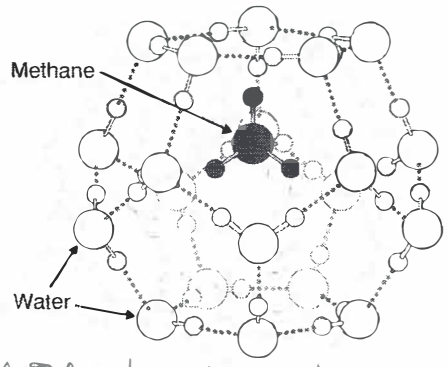
+3/3

Name: Melissa Arellanes-Vigueras

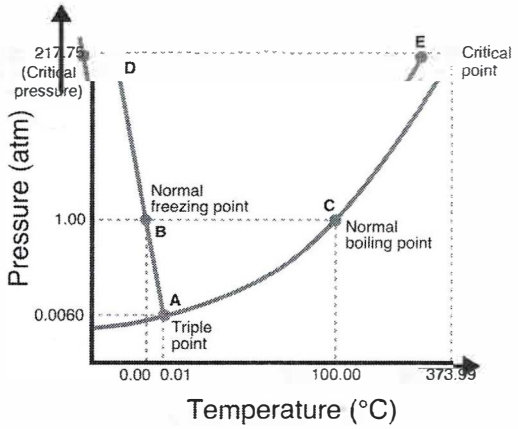
Consider methane clathrates (pictured below). The incorporation of methane in ice results in thermodynamically favorable clathrate formation.

METHANE CLATHRATE




- more london dispersion

PHASE DIAGRAM FOR WATER




Given the phase diagram of water above, predict how the line A–D (that represents the equilibrium between the solid and liquid states of water) would shift. Explain your answer.

The equilibrium line would shift to the right ✓ because of the additional london dispersion forces. The increased intermolecular attraction would increase the normal freezing point, requiring a higher temperature to go from a solid to a liquid.

+3/3

Name: Alec _____ _____

The line would shift right ✓. If the clathrate is thermodynamically stable, then it is stable as ice. This means it would take more energy (higher temperatures) to melt the substance, which explains the shift to the right.

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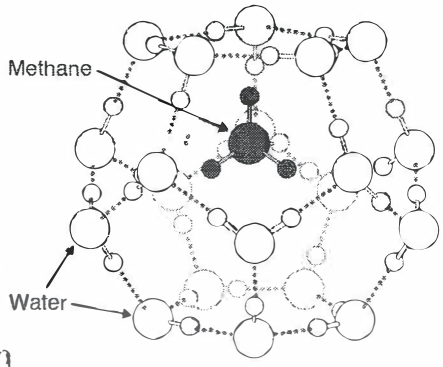
+ 3/3

Name: Vanessa Blas

Consider methane clathrates (pictured below). The incorporation of methane in ice results in thermodynamically favorable clathrate formation.

METHANE CLATHRATE

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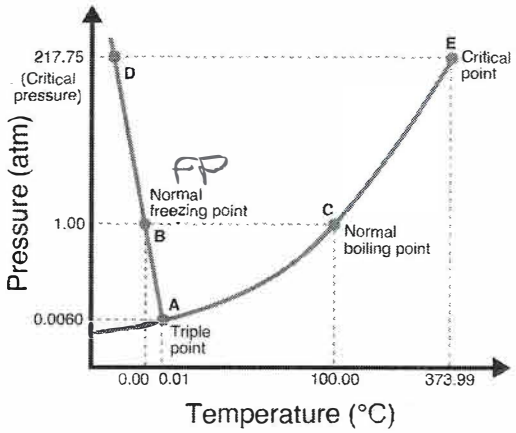


more dispersion forces, more IMF, higher freezing point

Given the phase diagram of water above, predict how the line A–D (that represents the equilibrium between the solid and liquid states of water) would shift. Explain your answer.

Line AD would shift to the right ✓ because since the incorporation of methane would increase the amount of dispersion forces, the strength of IMF increases. Increasing IMF would increase the temperature needed for phase change to occur (so FP increases)

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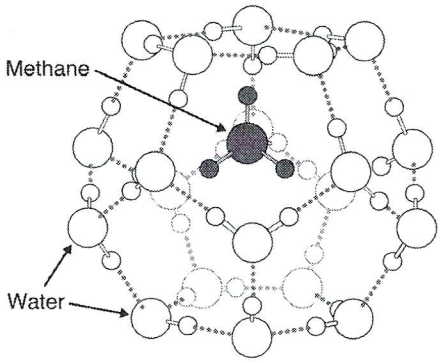
+ 3/3

Name: Alex Saczawa

Consider methane clathrates (pictured below). The incorporation of methane in ice results in thermodynamically favorable clathrate formation.

METHANE CLATHRATE

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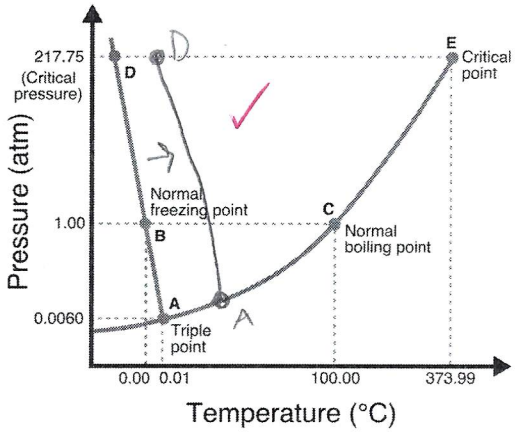


Given the phase diagram of water above, predict how the line A–D (that represents the equilibrium between the solid and liquid states of water) would shift. Explain your answer.

The line would increase because the clathrate formation results in greater stability in the solid stage of water. Therefore, a greater stability in the solid state would result in a greater section of solid water in the phase diagram.

Probably you mean the "area" but okay.