

Lecture Outline

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✓ Pure Substance.



✓ Phases of Pure Substance.

✓ Phase Rule

✓ PVT Phase Diagram



SATURATION TEMPERATURE AND PRESSURE



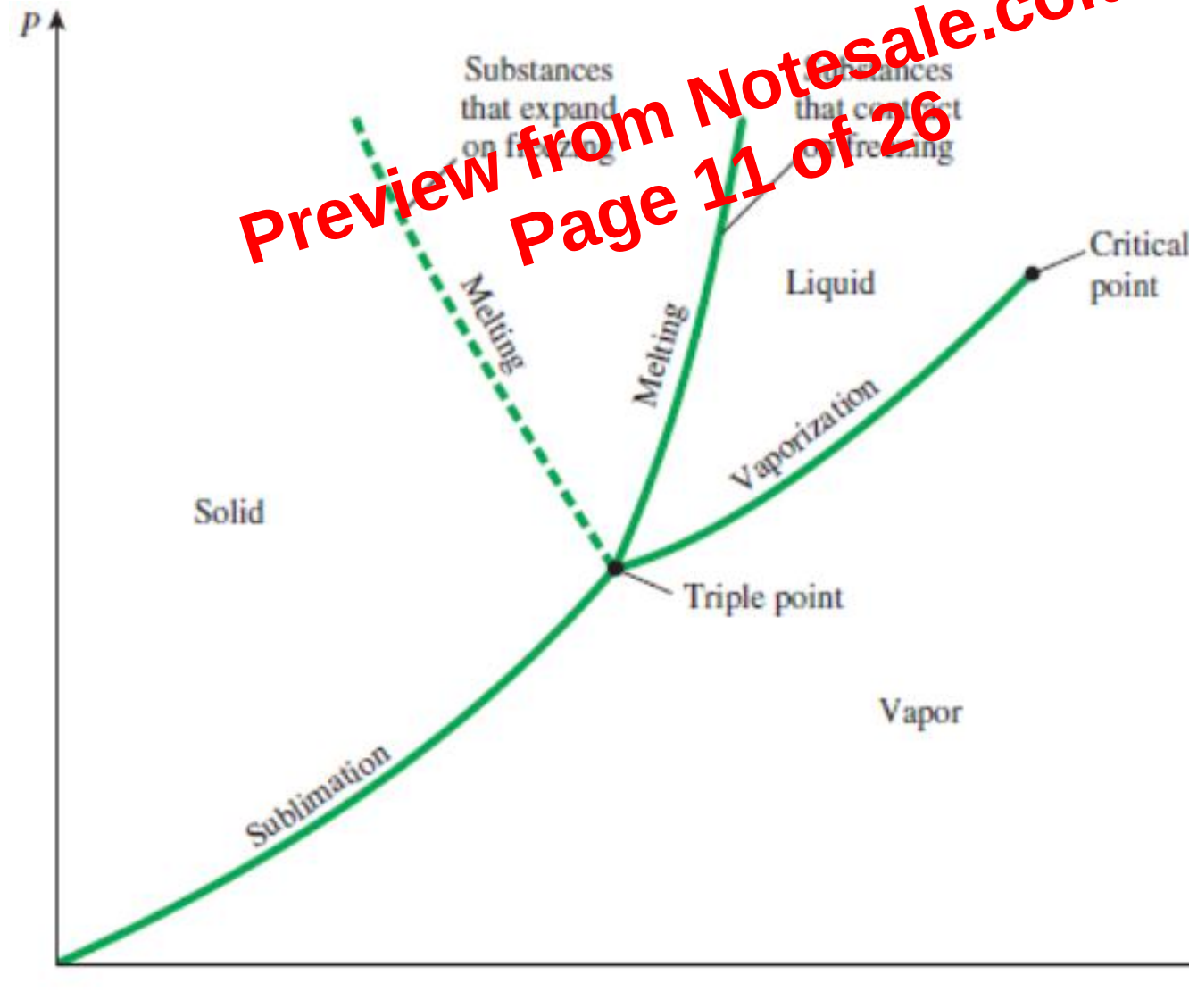
- ❖ At a given pressure, the temperature at which a pure substance changes phase is called the **saturation temperature T_{sat}** .
- ❖ Likewise, at a given temperature, the pressure at which a pure substance changes phase is called the **saturation pressure P_{sat}** .
- ❖ At a pressure of **101.325 kPa**, **T_{sat} is 99.97°C**. Conversely, at a temperature of **99.97 °C**, **P_{sat} is 101.325 kPa**. (At 100.0 °C, P_{sat} is 101.42 kPa.)



Phase Diagram of Water



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- ✓ This diagram is often called the phase diagram since all three phases are separated from each other by three lines.
- ✓ The sublimation line separates the solid and vapour regions, the vaporization line separates the liquid and vapour regions, and the melting (or fusion) line separates the solid and liquid regions.



Problem Example

Example 3-4 from Notesale.co.uk
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Example 3-5 Cengel 7 Ed page 129

