

# PGE 380

## Production Lab

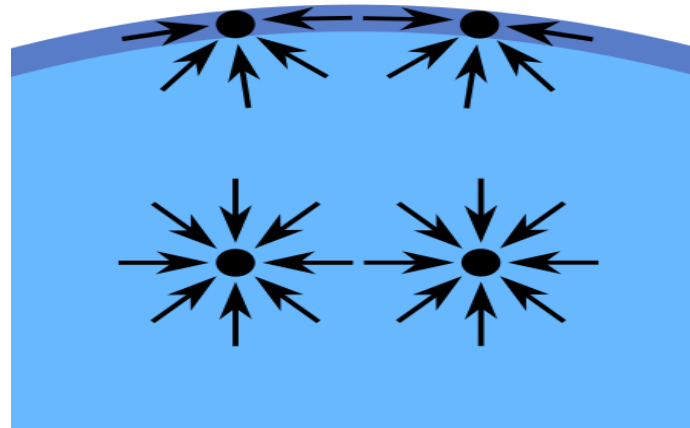
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# Surface Tension

- Definition
  - Contractive tendency of the surface of a liquid that allows it to resist an external force.
  - At liquid-air interfaces, surface tension results from the greater attraction of water molecules to each other (due to **cohesion**) than to air (due to **adhesion**)



SURFACE TENSION

# Surface Tension

- Unit

- $\gamma = \frac{F}{L}$
- force/unit length
- Newton/meter
  - Water (72.8 mN/m @ 20 °C)
    - What does it mean?
  - Mercury (487 mN/m @ 15 °C)
- dyne/cm



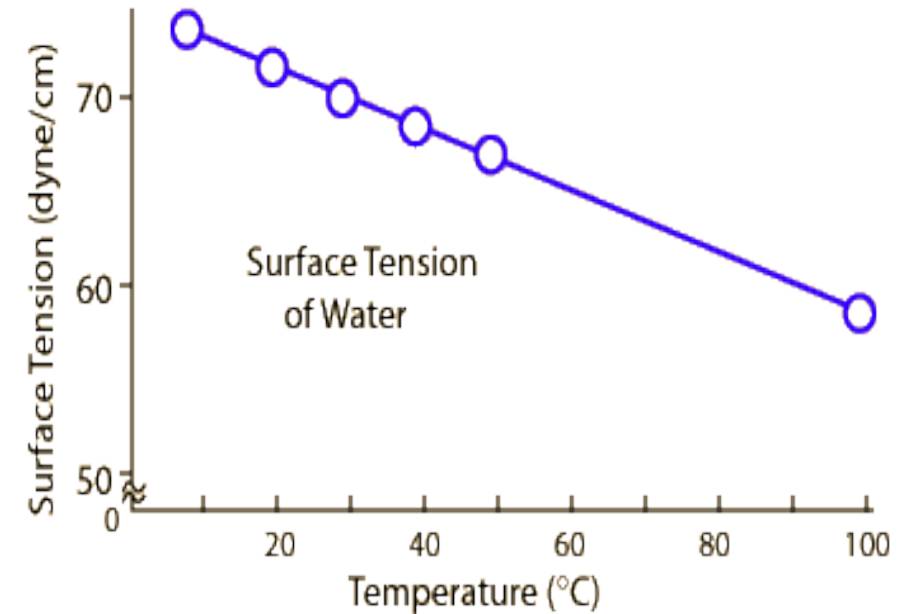
# Surface Tension

- Examples
  - Walking on water
  - Floating a needle
  - Do not touch the tent
  - Soap and detergents
  - Washing with cold water
  - Surface tension disinfectants



# Surface Tension

- Temperature effect
  - Example (water)
  - Why hot water is better cleaning agent?
- IFT
  - Difference between ST & IFT
- Importance in oil application
  - Should be discussed in the report?



# Surface Tension

- Video

- <http://www.youtube.com/watch?v=ynk4vJa-VaQ>
- <http://www.youtube.com/watch?v=u5AxIJSiEEs>
- <http://www.youtube.com/watch?v=whukr452ZvY&hd=1>
- <http://www.youtube.com/watch?v=ev9XyuLwjul&hd=1>