

Surface tension

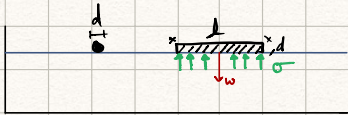
cohesive - A to A

adhesive - A to B

Surface force

$$[\sigma] = \frac{N}{m} = \text{constant}$$

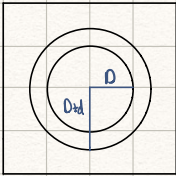
$$F = \sigma L \quad | \quad L = \text{length of interface}$$



$$\text{if } \begin{cases} w \leq \sigma L & \checkmark \\ w > \sigma L & \times \end{cases}$$

$$L = 2l \\ \Rightarrow F = \sigma L = 2\sigma l$$

Example :



$$r = D + D + d = 2D$$

$$L = 2\pi r = 4\pi D$$

$$F = \sigma L$$

$$F = \sigma 4\pi D$$

$$d \ll D$$

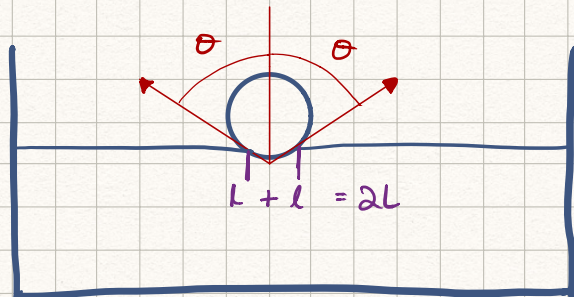
$$\Sigma F = 0$$

$$P = W - \sigma 4\pi D$$

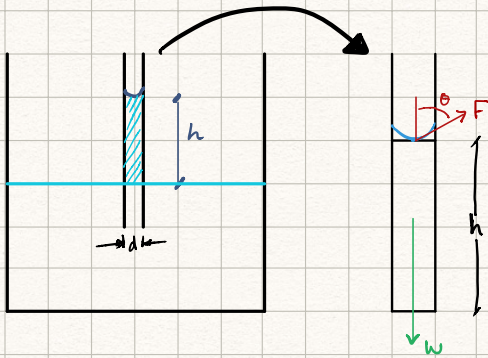
Concept

$$W = 2l \sigma \cos \theta$$

$$W_{\max} = 2l \sigma \cos \theta \quad \xrightarrow{1 \text{ (at } \theta = 0)}$$



Capillary tube d soll



$$F = \sigma L = \sigma \pi d$$

$$L = \pi d$$

$$\Sigma F = 0$$

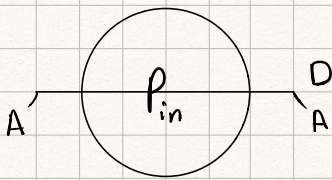
$$F \cos \theta - W = 0$$

$$\Rightarrow \sigma \pi d \cos \theta = \frac{\rho h d^2}{4}$$

$$h = \frac{4 \sigma \cos \theta}{\rho d}$$

$$\left. \begin{aligned} W &= \rho V \\ V &= h \frac{\pi d^2}{4} \end{aligned} \right\}$$

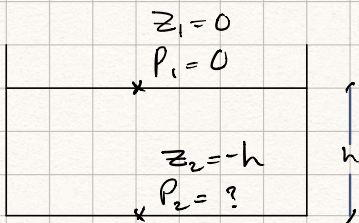
Sphäre drop



MIA

(Pics on phone when bin done
ll send a finished copy)

Pressure



$$\Delta P = -\rho g \Delta z \Rightarrow P_2 - P_1 = -\rho g (z_2 - z_1) \Rightarrow P_2 - 0 = -\rho g (0 - h)$$

$$\frac{dP}{dz} = -\rho g$$

$$P_2 = \rho g h$$