NOTES FROM LECTURE 8/22/2017 (1)

THERMAL CONDUCTIVITY [K , or λ]

SPECIFIC HEAT or HEAT CAPACITY [C] units $\frac{J}{Kg \cdot K}$

WE WANT TO CALCULATE THE ENERGY [HEAT] TO HEAT 1 Kg of MATERIAL FOR 10°C

$1\,Kg \times 4.2\times10^{3}\ J/KgK \times 10K$

$Q = M \times C \times 10°C\,(K) = 4.2\times10^{4}$ Joules $= 42$ KJ

Joules / Kg·K; 1 Kg; Temperature difference

$T_i = 20°C$

$T_f = 30°C$

$\Delta T = 30°C - 20°C = 10°C$ — SAME

Converting to Kelvins

$T_i = 20+273\ K$

$T_f = 30+273\ K$

$\Delta T = 10K$

For water $C = 4.2\ \frac{KJ}{KgK} = 4.2\times10^{3}\ \frac{J}{KgK}$

FALLING FILM EVAPORATOR [DAIRY TECHNOLOGY]