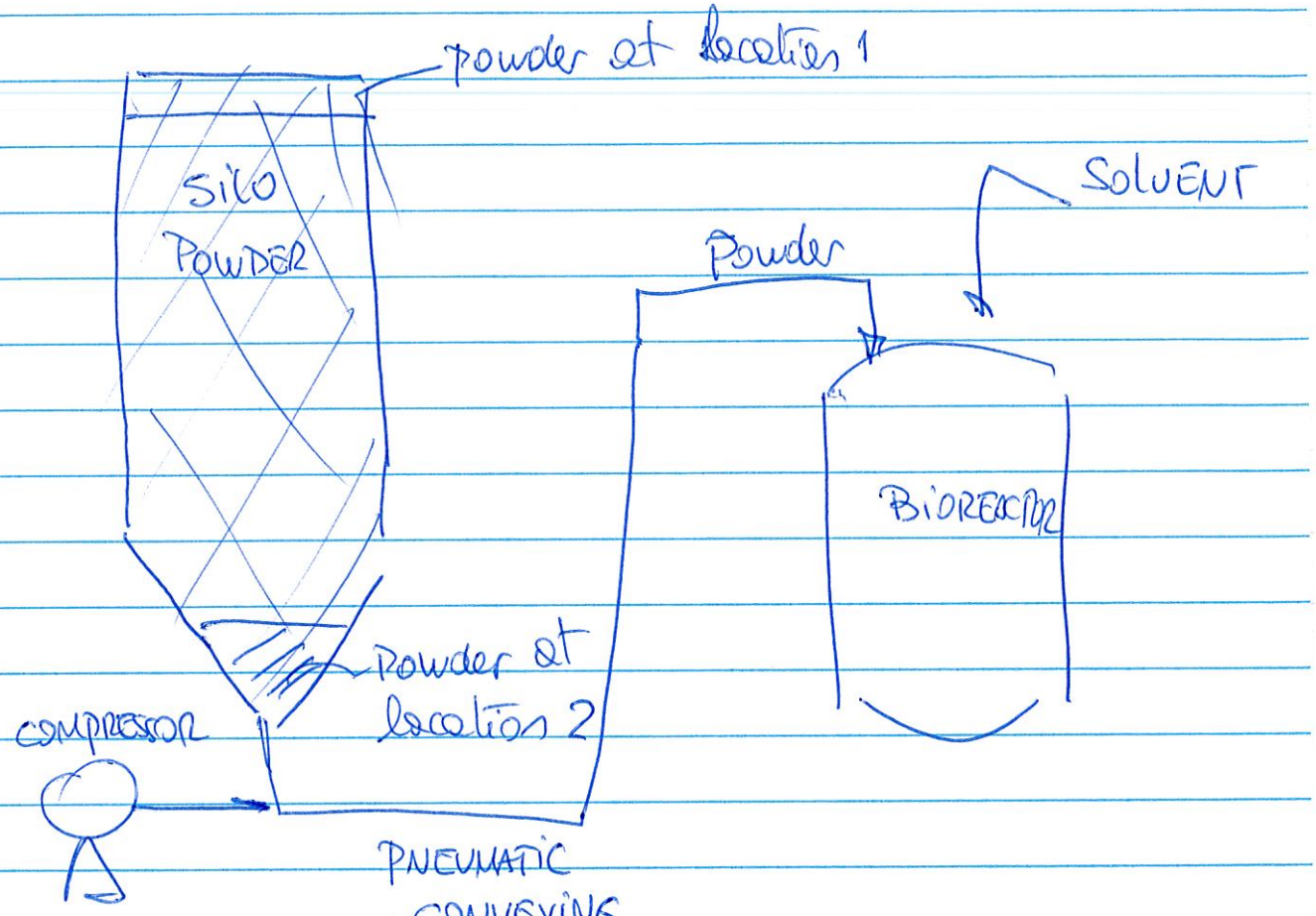
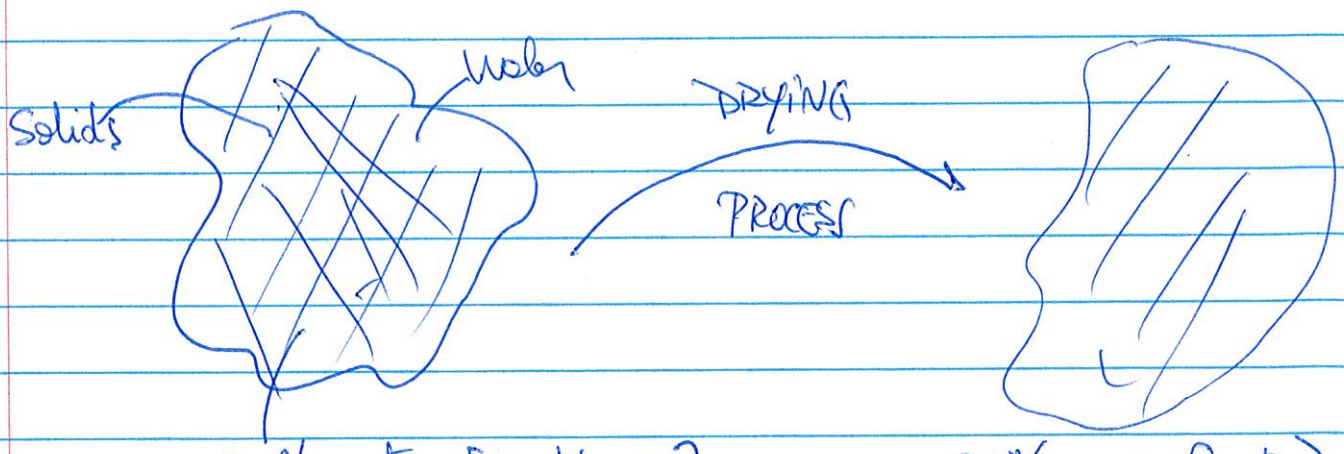
NOTES LECTURE 8-24-2017



MOISTURE CONTENT DRY WEIGHT VERSUS WET WEIGH



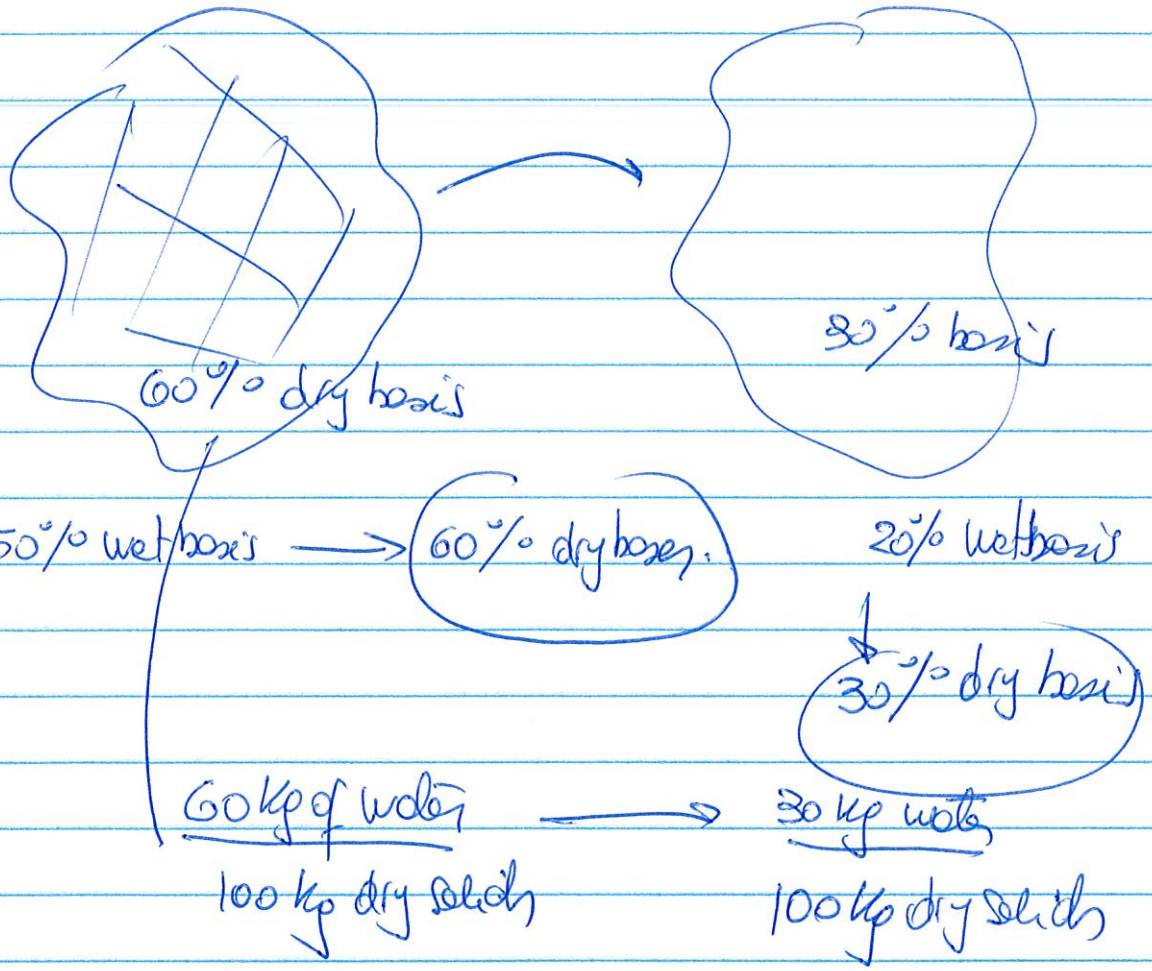
50% water [wet basis]

$\frac{50 \text{ kg water}}{100 \text{ kg product}}$

20% water (wet basis)

$\frac{20 \text{ kg water}}{100 \text{ kg of product.}}$

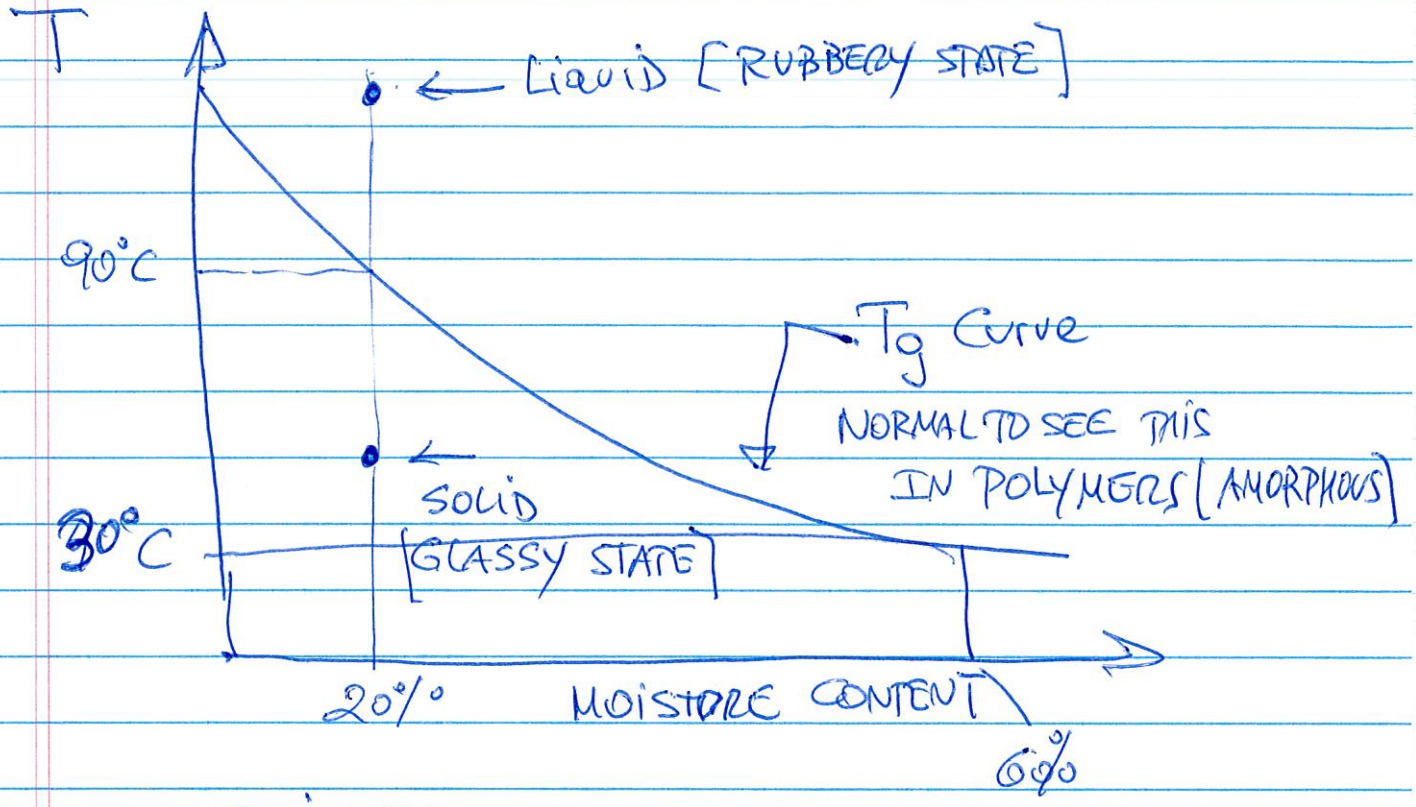
DRY BASES



MOST OF TIMES WE WILL USE DRY BASES FOR MOISTURE CONTENT CALCULATIONS

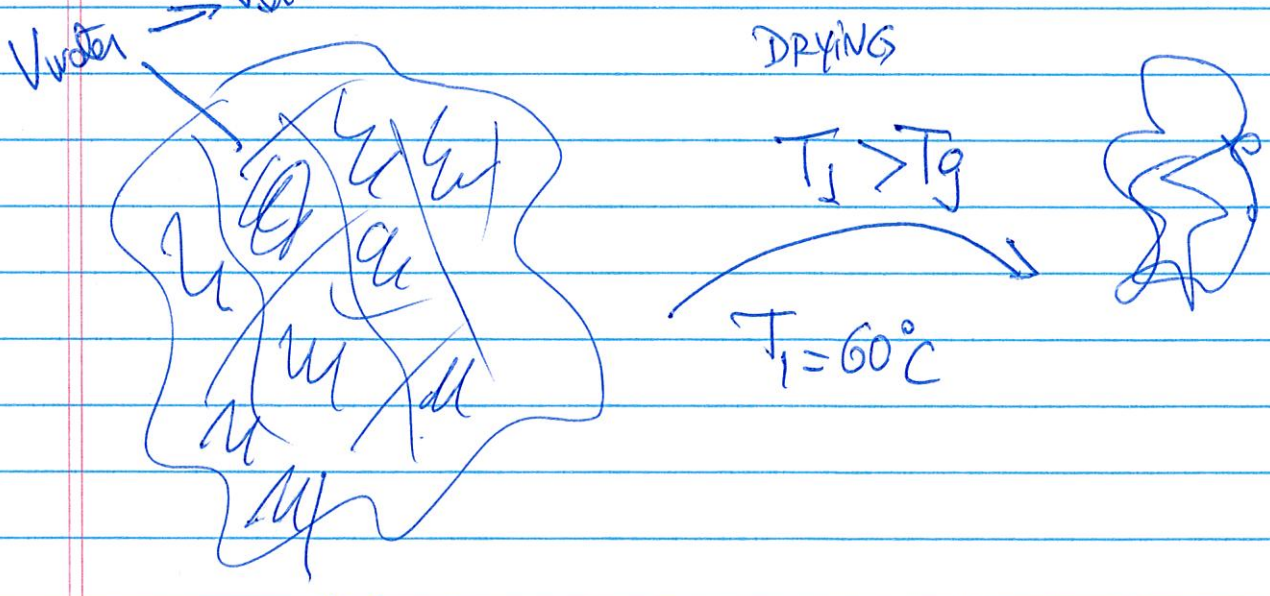
THINK HOW TO CONVERT WET BASIS TO DRY BASIS (MOISTURE CONTENT)

GLASS TRANSITION TEMPERATURE [T_g] (3)

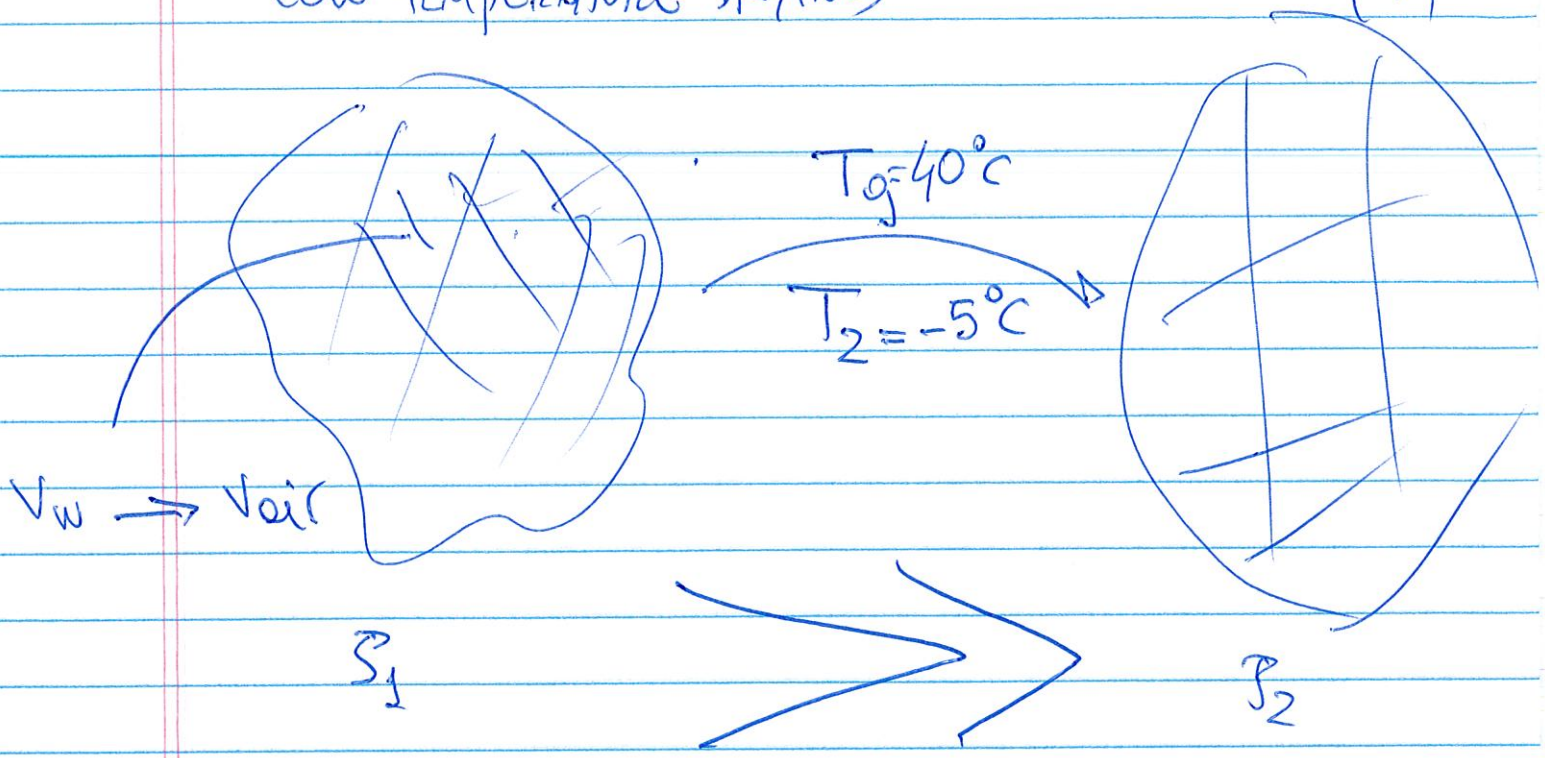


SLIDE 31

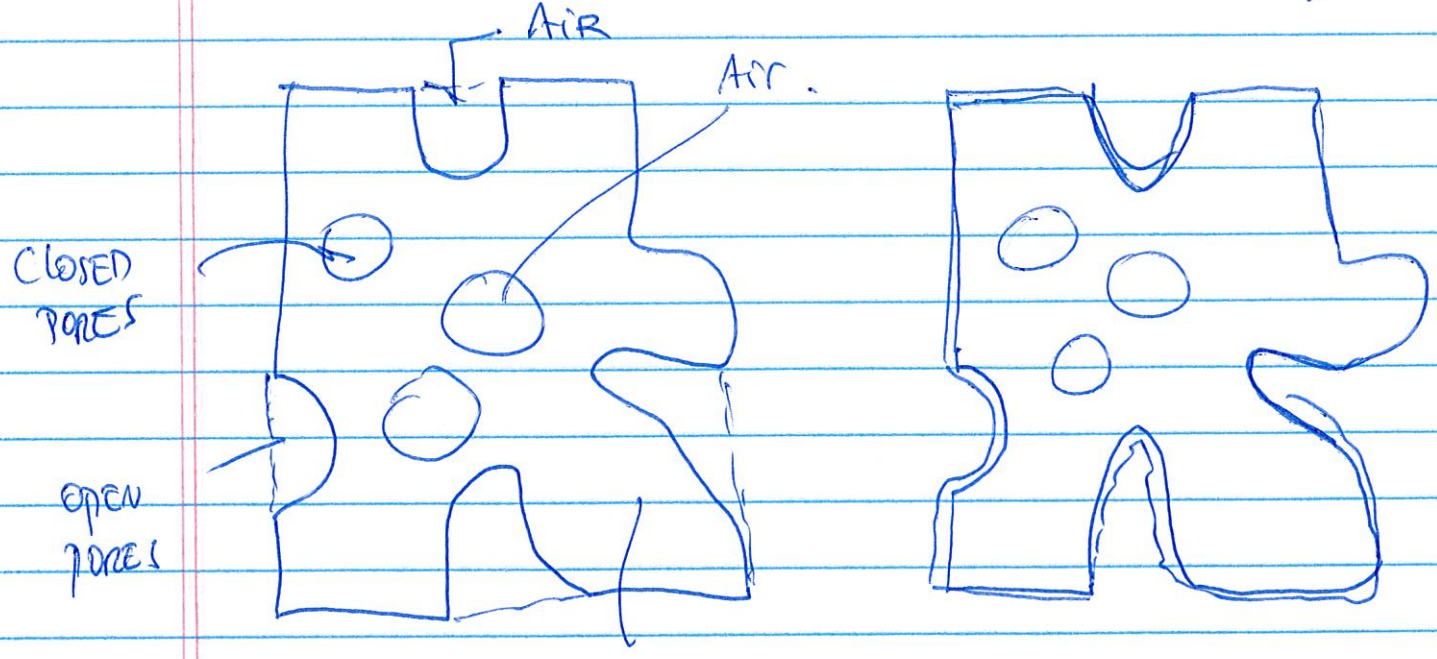
EXPLANATION HIGH TEMPERATURE DRYING



LOW TEMPERATURE DRYING



APPARENT DENSITY VERSUS PARTICLE DENSITY



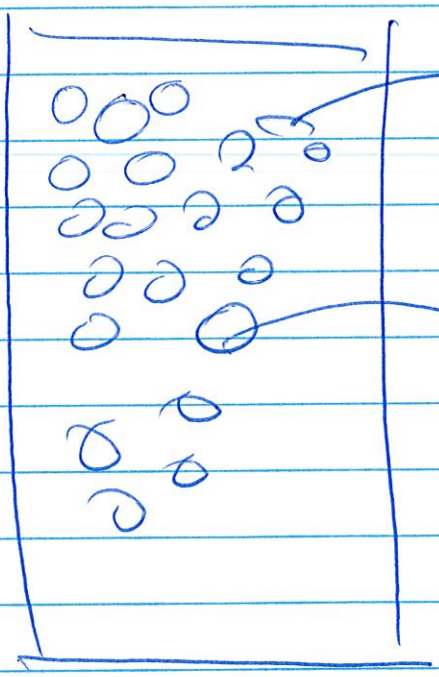
ρ_{app} density counting open & closed pores.

Solid

$\rho = \frac{\text{Mass}}{\text{Volume}}$

ρ_{pt} density. counts closed pores.

EXAMPLE 1



3000 tons = 3×10^6 kg of oats.

oat grain.

$\rho_{oat} = 1546 \frac{kg}{m^3}$

$\varepsilon_B = 0.4$

ε_B = ~~Poros~~ Volume of open pores + Volume of close pores + Volume interspace between particles.

TOTAL Volume

3×10^6 kg

ρ_B = Mass of Material / Volume of container

V_{silo}.