

~~Since~~ As discussed in class yesterday
 To obtain high humidities at high temp to satisfy
 the glass transition constraint, the dryer will
 need to under pressure.

An example outline below uses the saturated steam
 pressure at the max dryer temp i.e. 423K at $\alpha_w = .60$

$$\alpha_w = H_R = \frac{P_a}{P_{as}} \Rightarrow P_a = \alpha_w(P_{as}) \text{ Eq 9.3-4 C\&G}$$

$$\frac{k_g H_2O}{k_g DA} H = \frac{18}{29} \frac{\alpha_w P_{as}}{P_T - \alpha_w P_{as}} \text{ Eq (9.3-1) C\&G} \text{ from steam tables at } 423^\circ K (150^\circ C) \quad P_{as} = 475.8 \text{ KPa}$$

~~Q~~ H from airflow rate and dryers.

$$H = .62 \left(\frac{.6 \times 475}{475 - .6 \times 475} \right) = .62 \left(\frac{.6 \times 475}{.4 \times 475} \right)$$

$$= .93 \frac{k_g H_2O}{k_g DA}$$

