

Moisture exchange between two materials

2011-10-23/L-O Nilsson

(only yellow cells may be changed!)

	Volume=	RH _{start} =	Moisture capacity Δw/ΔRH=		gives:	RH ₀ =
Material 1:	0.01	85	2.0			
Material 2:	0.10	40	0.1	(at equilibrium)		70.0
	(m ³)	(%)	(kg/(m ³ %RH))			(%)
	(or m/m ²)	(RH ₁ >RH ₀)	(or. kg/m ³)			

(not really required, but then the description is correct!)

NOTE! The moisture capacities Δw/ΔRH must be chosen in the intervals (RH₀,RH₁) and (RH₂,RH₀)!
If the chosen intervals differ too much, use new moisture capacities!

NOTES! Consider hysteresis! One of the two moisture capacities should be from a scanning curve!

$$RF_0 = \frac{RF_1 \cdot \left(\frac{\Delta w_e}{\Delta RF}\right)_1 (RF_0, RF_1) \cdot V_1 + RF_2 \cdot \left(\frac{\Delta w_e}{\Delta RF}\right)_2 (RF_2, RF_0) \cdot V_2}{\left(\frac{\Delta w_e}{\Delta RF}\right)_1 (RF_0, RF_1) \cdot V_1 + \left(\frac{\Delta w_e}{\Delta RF}\right)_2 (RF_2, RF_0) \cdot V_2}$$

"RF" in the equation means "RH"!

$$\left(\frac{\Delta w_e}{\Delta RF}\right)_1 (RF_0, RF_1)$$

means the moisture capacity of material 1 in the RH-interval RH₀-RH₁