



Dehumidifier Formulas

DEHUMIDIFER

Temperature Process Out: $T_{po} = T_{pi} + .68 (M_{pi} - M_{po}) + .05 (T_{ri} - T_{pi})$

Reactivation Outlet Moisture: $M_{ro} = M_{ri} + V_p/V_r (M_{pi} - M_{po})$

Temperature Reactivation Out: $T_{ro} = T_{ri} - [(T_{po} - T_{pi}) \times V_p/V_r]$

Reactivation Energy: $BTU/H = 1.08 \times V_r \times (T_{ri} - T_{ru})$

MISCELLANEOUS FORMULAS

Moisture Removal: $= \frac{4.47 \times CFM \times \Delta gr.}{7000}$
(Lbs/hr)

CFM: $= \frac{7000[lbs/hr]}{(4.47 \times \Delta GR)}$

ENERGY FORMULAS

KW $= CFM \times \frac{1.08 \times \Delta T}{3412}$ or $\frac{BTU/H}{3412}$

Temperature rise $= \frac{BTU/H}{CFM \times 1.08}$

BTU/H $= KWH \times 3412$
HP $\times 2545$
CFM $\times 1.08 \times \Delta T$

LEGEND

Tpo	Temp Process Out (°F)	Vp	Process Air Volume (CFM)
Tpi	Temp Process In (°F)	Vr	React Air Volume (CFM)
Tru	Temp React In Unheated (°F)	Mpo	Moisture Process Out (GR)
Tro	Temp React Out (°F)	Mpi	Moisture Process In (GR)
Tri	Temp React In (°F)	Mro	Moisture React Out (GR)
CFM	Cubic Feet/Minute	Mri	Moisture React In (GR)
BTU/H	British Thermal Units/Hour	HP	Horsepower
ΔGR	Difference in Grains	KWH	Kilowatt Hours
ΔT	Difference in Temperature		

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