Drying Summary

Sid 8 – Lamellae

Sid 10 – Alloying

Sid 12 – Drying channel

The drying technology is based on four ideas:

- To dry in a closed circuit
- To dry continuously – progressive dryer
- To use radiating heat with wavelengths where water has a high energy absorption coefficient.
- Hygienisation

Sid 15 – Stefan Boltman´s law

With Stefan Boltzman's law we are able to calculate the quantity of transmitted energy:

$p = c_{12}\ A_1\left[\left(\frac{T_1}{100}\right)^4 - \left(\frac{T_2}{100}\right)^4\right]$; T_1=453 K, T_2=333 K

$$C_{12} = \frac{C_s}{\frac{1}{\varepsilon_1} - \frac{1}{\varepsilon_2} - 1}$$

$C_s = 5.67\ w/m^2\ K^4$

ε^1 = oxidized lamella = 0.97

ε2 = surface product = infinite area, wet and porous black body ≥ 0.97

$C12 = 5.34\ w/m^2\ K^4$

$A_1 = 2100 m^2$

The calculation is made 2015-01-11, version C.

$p = 5.34 \times 2100 \times (4.53^4 - 3.33^4)$

$p = 3343$ kW

Sid 16 - Black body

Sid 17 – Wien´s displacement law

$$\lambda_m \times T = 2.88 \times 10^{-3}\ m\ ^\circ K$$

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Ribbings curve

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C-G Ribbings trendkurva

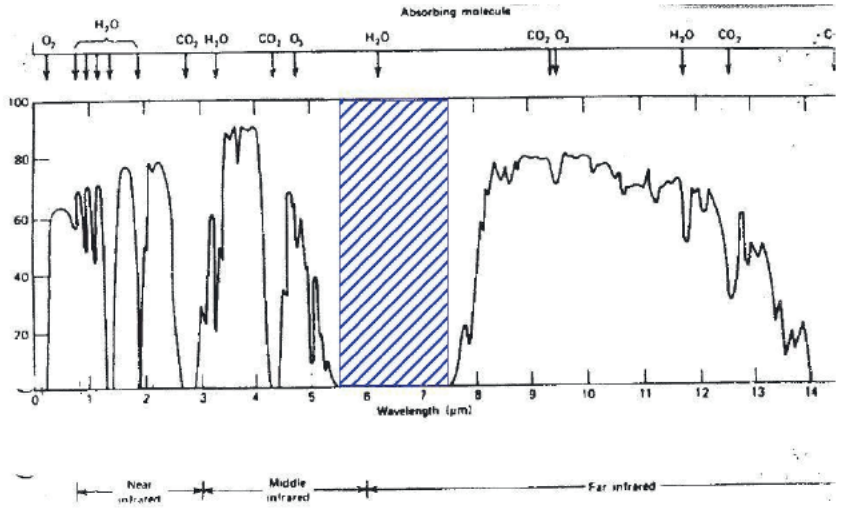

Figure 1: Transmittance through the earth's atmosphere
Prof. C-G Ribbing, Uppsala Universitet, Ångström Lab.

Sid 21 – Energy concentration

$$E = h \times f = \frac{h \times c}{\lambda}$$; c = speed of light