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Hailwood-Horrobin

EMC= / % EMC= / %

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(EMC= / %)

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$W = + / T - / T$
 $K = / + / T - / T$
 $K_1 = / + / T / T$
 $K_2 = / + / T - / T$

)
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(NCDC)

(K =) Sturges
(C.L=)
LSD

$$L_n \frac{P}{P_0} = \left(\frac{B}{T}\right) - \left(\frac{B}{Td}\right)$$

(K°) :T $H = \frac{P}{P_0}$
B (K°) Td
(.)

) Hailwood-Horrobin
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$$EMC = \frac{1800}{W} + \left[\frac{Kh}{1-Kh} + \frac{K_1Kh + 2K_1K_2K^2h^2}{1 + K_1 \times Kh + K_1k_2k^2h^2} \right]$$

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: h (%) : EMC
K₂ K₁ K W (%)
(°F)

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EMC = / %

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Tsoumi,G.

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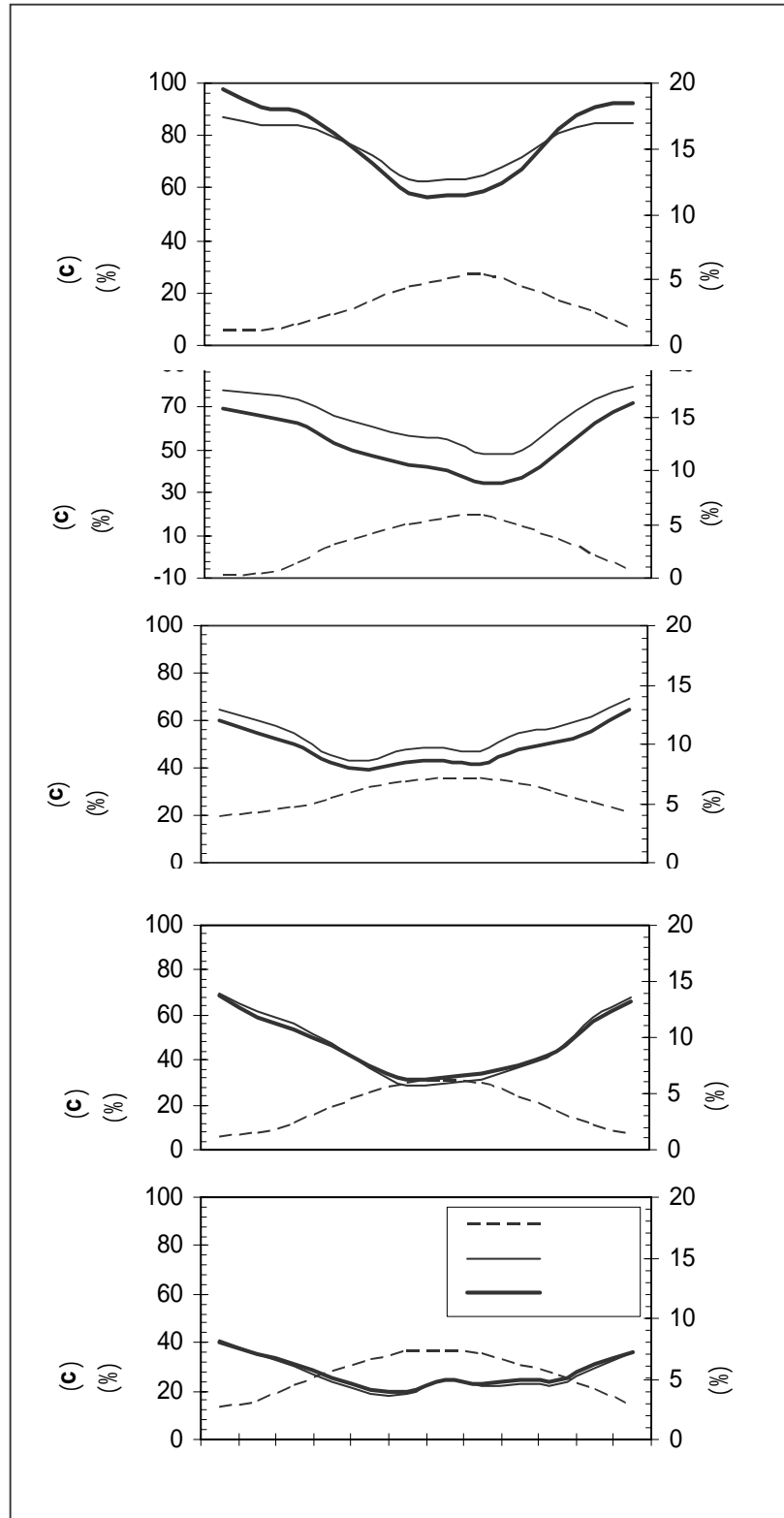
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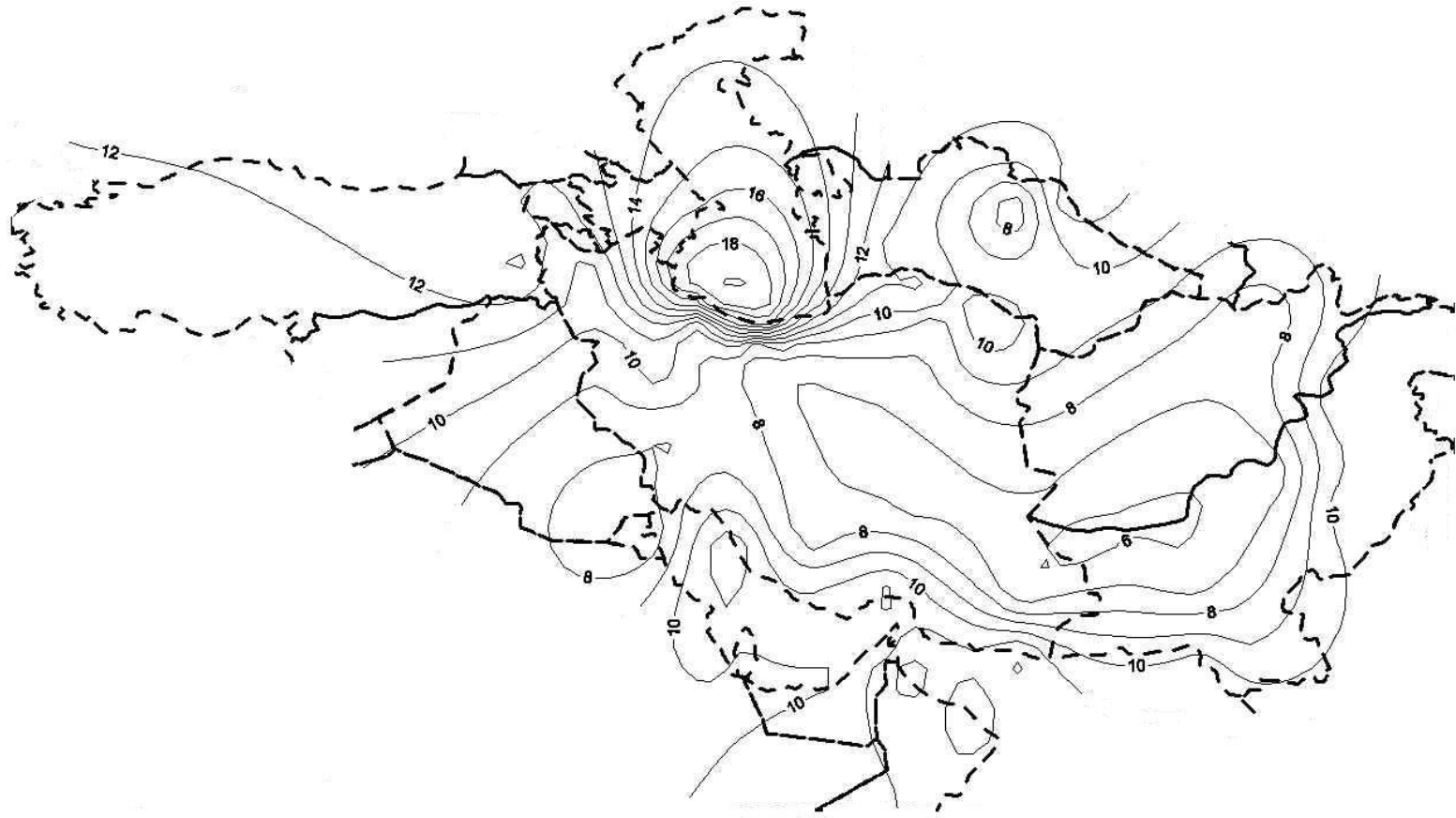
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Determination of Equilibrium Moisture Content (EMC) of Wood in neighbouring countries of Iran

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Abstract

The mean value of annual temperature and relative humidity of 33 cities in Azerbaijan, Armenia, Turkmenistan, Afghanistan, Pakistan, Oman, United Arab Emirates, Bahrain, Qatar, Kuwait, Iraq and Turkey were determined using climatic data of the past 11 years. The EMC values were calculated using the Hailwood-Horrobin sorption model and its annual fluctuation, together with temperature and relative humidity, were determined. The results indicated that EMC values in the cities ranged from 5.6% to 15.6%. Comparing annual temperature, relative humidity and EMC curves of these cities and conducting statistical analyses, the cities were classified into five groups with mean EMC values of 6.6, 8.6, 10.6, 12.6 and 14.6 percent. Thus, the results showed that EMC of the cities were below or equal to the allowable moisture content of wood and, wood products and the other hygroscopic materials (leather, textile and related products) in service except Bakoo in Azarbajan (EMC=15.6%). Therefore, if wood and wood products and related Hygroscopic materials are processed within the range of the respective moisture content and exported to the neighbouring countries of Iran, their quality and durability could be guaranteed.

Key words: Wood, Hygroscopic materials, Wood products, Equilibrium moisture content