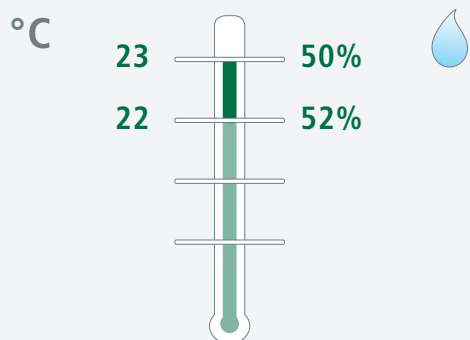


CLIMATE AND CARTONBOARD



Optimum Processing Climate



WARNING

- After acclimatisation, always remove the packaging film just before printing.
Optimum processing climate:
22-23°C, 50-52% r. H.

Definition of terms

- Climate refers to environmental conditions described according to temperature and humidity.
- Humidity is the amount of water vapour in the air.
- Absolute humidity is the mass of water vapour in g contained in 1m³ of air.
- Maximum humidity is the saturation of the water vapour in 1m³ of air at a particular temperature.
- Relative humidity is the relationship expressed as a percentage of absolute and maximum humidity at a particular temperature.

General information

Warmer air can hold more humidity than cold air, which means that at the same relative humidity, there is less water vapour in cold air than in warm air.

Eg. 1m³ air contains at 100% saturation approx.

4 g water at	0°C
9 g water at	10°C
17 g water at	20°C

A relative humidity of 50% at 20°C at the same absolute water content corresponds to

92% at 10°C
56% at 18°C
44% at 22°C

This demonstrates the strong influence of temperature on humidity.

Interaction of climate ↔ cartonboard

- Absolute humidity is the mass of water contained in the cartonboard and is expressed as a percentage of the cartonboard mass. This is an important value to guarantee the manufacture of equally humid cartonboard, and one to which little importance is attributed, although it is essential for optimum grooving, for instance.
- As far as its humidity content is concerned, cartonboard should be manufactured with the objective of achieving a balance with the ambient air. The humidity balance is therefore the relationship between the air surrounding a stack of cartonboard and the air between each individual sheet. If the humidity balance of the relative humidity corresponds to the ambient air, then the cartonboard will neither absorb nor release humidity.
- The relative humidity measured in the stack shows at which relative humidity of the ambient air the cartonboard is in balance.

Note: Different raw materials (chemical pulp, groundwood pulp, waste paper) have different absolute humidities at the same relative humidities, for example, at 23°C / 50%

Relative humidity	Groundwood pulp	9.5% abs.
	Chemical pulp	6.5% abs.

Temperature difference Pallet to printing room 20°C	Time in printing room before unpacking in hours
5 °C	10 11 12
10 °C	20 22 24
15 °C	30 34 35
20 °C	40 46 50
Volume of pallet in m ³	0,7 1,0 1,4