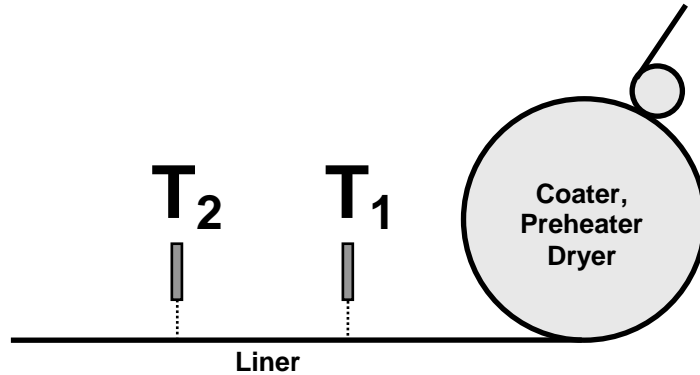


Moisture Measurement Location



$$\Delta T = T_1 - T_2$$

New Concept Moisture Sensor Developed:

A new method has been developed for sensing and controlling the moisture content (MC) of products that exhibit a cooling curve following a dryer or heater. It applies quite well to such products as bulk solids, paper and textile webs, coated products, and other products following dryers, heaters, and the like. The MC can be determined by continuously sensing the temperature drop (ΔT) of two consecutive on-line surface temperature readings T_1 and T_2 along a line parallel with the direction of flow (see figure above).

This new moisture sensor has become the basis for a new warp control system in the corrugated board industry. In addition, it should be useful in the pulp and paper, non-wovens, textiles, carpet, coating, and bulk solids industries such as chemicals, minerals, animal feed, petfood, etc.

The ΔT data is continuously sensed and an output signal proportional to the product MC is generated by use of our patented, first-principles-derived Delta T mathematical model. This signal can be used to monitor MC of the product or control the MC leaving the dryer, oven, coater, etc., by adjusting the thermal energy input or the dryer speed or production rate. This new development in Delta T moisture sensing and control complements the basic Delta T control system that is able to sense the MC inside the harsh environment of the drying system, thus reducing the dead time (and the MC variation) by at least 30% and sometimes more. Consequently, if applicable, more water can be left in the product without exceeding the upper specification limit.