



PRECISE MEASUREMENT EQUIPMENT FOR BEST QUALITY TOBACCO

In the manufacture of tobacco products, it is important to accurately monitor the entire process: from curing through aging to fermentation of the tobacco and the production and storage of the end products.



Barrilito filled with cigars, and HygroPalm HP23-AW evaluation unit.

Example: cigar production (Havana, Cuba)

Famous brands like Cohiba, Montecristo and Partagas are often household names, even among the uninitiated. But before a cigar is made, the tobacco must be prepared and made fit for consumption. After harvesting, the tobacco leaves are tied in bundles known as gavillas in the casa de tabaco, and hung up to dry.

“ The Rotronic HygroPalm is the perfect solution for quality control on site. A stand-alone measurement system that can be used freely and independent of mains.”

Jose M. Guardiola Pedrosa
Tabacuba, Cuba

The drying process, which takes place in the so-called dry shed, serves to further ripen the tobacco leaves, and reduces the sugar and water content in them. This type of

drying takes up to 60 days. During this time, the workers carefully ensure the correct temperature and humidity for the drying process.

The subsequent fermentation serves to develop the aroma, and removes bitter and unpleasant substances from the leaves. The storage and ripening processes involved may take up to several years, in some cases. After the ripening process, the leaves are ready for processing in the cigar factory.

Precise equipment for measuring the optimum equilibrium moisture

The equilibrium moisture is a key factor in the quality of a cigar. There are various methods of determining the equilibrium moisture of cigars. The Rotronic water activity probes work with digital AirChip3000 HygroClip technology, which ensures their high performance and simple, digital adjustment and calibration.

HygroPalm HP23-AW for portable use

The HygroPalm offers the perfect solution for water activity measurement on site. The attachment clamp grasps the bundle of tobacco with its holding jaws, and the HygroClip DC2-S in the measuring chamber measures the equilibrium moisture of the tobacco. The values for equilibrium moisture and temperature are transmitted digitally to the connected hand-held, the HygroPalm HP23-AW. A special measuring chamber, the “barrilito,” has been developed for measurement of equilibrium moisture in cigars. The cigars are placed in the “barrilito,” which is closed with a height-adjustable, airtight lid.

Example: cigarette production (Xuchang, China)

One of the characteristics of tobacco is that it absorbs a lot of moisture in a high-temperature environment, exuding it in the form of condensation at lower temperatures. This leads to a large population of micro-organisms that cause discoloring, mold, insects, and other phenomena that lead to serious loss of quality and considerable economic losses. Permanent monitoring of the climatic conditions is therefore an extremely important factor in the manufacturing process of quality cigarettes.

Sensors distributed all over the store measure humidity and temperature, and transmit the values to the control-room in real time. The team of supervisors is thus kept informed of the climatic situation in the tobacco store at all times, and can intervene if necessary. Because an



Tobacco production in China, monitored with the HF520.

Measured equilibrium moisture and calculated water content in one device

Using a large number of empirical measurements, the technical staff of the “Instituto del Tabaco” in Havana have found an algorithm that describes a correlation between equilibrium moisture and water content. This makes it possible to switch the HygroPalm and the application-optimized HygroClip probes between equilibrium moisture measurement and water content calculation.

alarm is triggered immediately when a preset value is exceeded. Monitoring humidity and temperature during the turning and airing process prevents variations that could seriously impair the quality of the tobacco. The Xuchang Tobacco Factory, known as “the Tobacco Kingdom,” was founded in 2003. In a total of 13 tobacco-processing centers, it produces 1.07 million packs of cigarettes a year. With a market share of more than 70%, the Tobacco Factory is among China’s top 500 companies.

“ Thanks to Rotronic, the quality team is kept informed about the climatic situation at all times, and can intervene at once, if need be.”

XiangYing Guo
Xuchang Tobacco Factory, China

The overall monitoring system comprises more than 400 sets of HF520 and HC2-S

The HF520 is the Rotronic company’s latest development in universal transmitters. Fitted with freely selectable analog outputs, the HF520 offers a wide range of applications, and its digital outputs ensure full network compatibility. Thanks to AirChip3000, the HygroClip2 series HC2-S probe offers a unique, convincing calibration and adjustment process. In addition, it offers the highest degree of reproducibility, and a guaranteed system precision of <0.8%RH and 0.1 K. The delivery to Xuchang was rounded off by a digital calibration solution for the factory’s own calibration laboratory.