

The KMF climate chamber properly loads a variety of paper types

The international organization TAPPI relies on the integrated solution of BINDER climate chambers for paper testing.

TAPPI is a leading non-profit organization for the pulp, paper, packaging and converting industries. The company has set itself the goal of providing solutions that lead to better, faster and more energy-effective ways of doing business through goal-oriented solutions. TAPPI, short for "Technical Association of the Pulp and Paper Industry", was founded in 1915 in the USA and over time has grown into a worldwide organization with several thousand members. Its members include engineers, scientists, managers, academics from around the world.

TAPPI sets standards for the highest quality paper

Among other things, TAPPI's focus is in testing paper for consistency and durability. To accomplish this task, TAPPI works with various standards and guidelines. One of these standards involves testing



resistance to ageing, the so-called T544 test. The paper is exposed to high temperatures and humidity. This test simulates long-term archiving of paper to test various types of paper for quality and characteristics. The paper quality then tested and evaluated for properties such as brightness, thickness, opacity, folding endurance and tear resistance. The test results are useful indicators and among other things, help TAPPI members identify suitable materials, develop product innovations and find solutions for specific requirements.

Constant temperatures and humidity ensure accurate test results

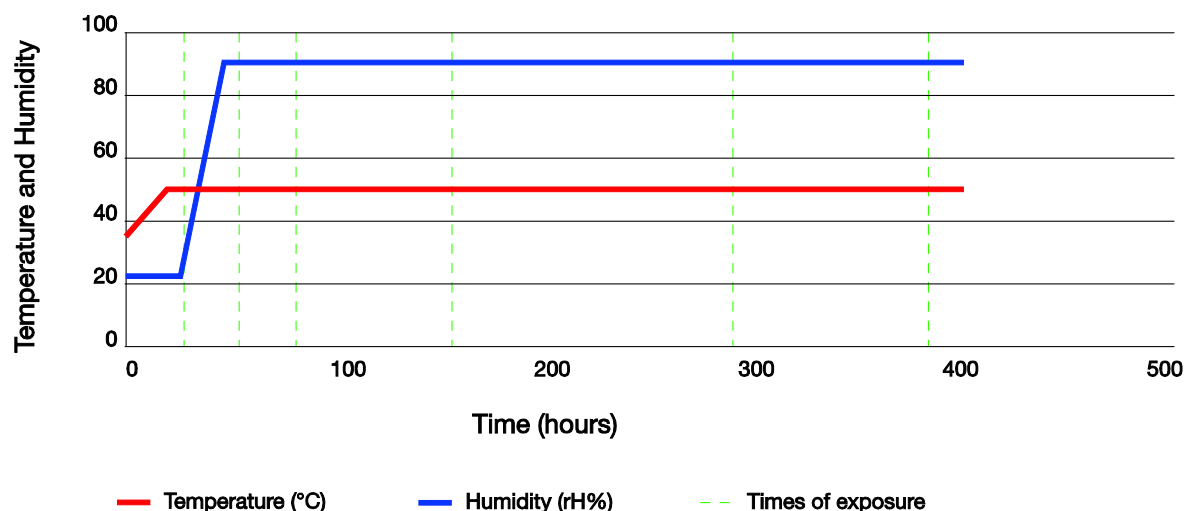
The KMF units from BINDER are material test chambers that can be used in many fields of application. The units are equipped with a controller that allows chronological programming. As a result, the samples are continuously exposed to the required temperature and humidity, and must not leave the climate chamber during the test phase. The simulation chamber has a capacitive humidity sensor standard, which also supports the quick response time of the innovative vapor pressure humidification system, which leads to optimal processing of samples and accurate test results. The process is supported by APT.line technology that allows a two-sided, uniform supply of air in the inner chamber. The result is a very gentle circulation process with precise temperature regulation.



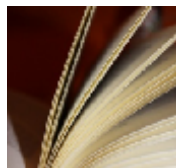
With a continuous supply of samples from the beginning to the end of testing, the KMF climate chambers from BINDER provide a complete solution that reduces disruptive fluctuations and improves reproducibility.

The guidelines of the T544 test require that the paper samples are preconditioned at 23°C and 10-35% r.H. 24 hours prior to testing. The actual test begins at a temperature of 23°C and 50% RH. The samples are then kept at a constant 90°C and 50% r.H. for a period of 16 days.

T544 Test



Temperature and humidity chart for paper testing



The chart above shows the temperature and humidity values over time. Samples are removed from the chamber for observation after various times of exposure at 90°C, 50% r.H. The test cycles prescribed in the standard are briefly interrupted after 24, 48, 72, 144, 288 and 384 hours.

Other common industry tests for paper and board and their set values:

Test	Temperature	Humidity
ASTM D4714	90°C	50% r.H.
ISO 5630/3	80°C	65% r.H.

Did you know?

Paper ages twice as fast for each 10°C increase in temperature or 25% increase in relative humidity.

To view the complete line of BINDER KMF chambers, please visit our website: [BINDER KMF Chambers](https://www.binder.com).
Thank you for your interest in Binder products.