XENOTEST®

BETA+

Light Exposure and Weathering Testing Instrument

Accelerated Weathering
with the Xenotest® Beta+

The stability of materials to the stresses of weather is critical to the success of your products. Daylight exposure with heat and humidity exert permanent stresses on materials that affect overall appearance and other physical properties.

The Xenotest Beta+ simulates and accelerates the natural weathering process providing reliable results concerning the long-term behavior of materials. By incorporating a variety of optional features, the Xenotest Beta+ can meet virtually all global weathering and lightfastness test requirements.

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The large, color touch screen makes operation easy and user friendly.

Non-ageing XENOCHROME® filter systems decrease the cost of operation while increasing the precision of the test.

Simultaneous, automatic control of chamber temperature and black standard temperature as well as humidity closely simulates your material’s end-use temperature conditions test after test.

XENOSENSIV® sensor combines accurate control of irradiance and black standard temperature to mirror on-rack exposure conditions (irradiance and black standard temperature are calibrated according to DIN EN ISO 17025).

Wide temperature ranges permit simulation of thermal conditions.

4000 cm² exposure area offers an adequate sample surface area for the exposure of up to 56 single samples or large 3D samples (e.g. PET bottles in a special instrument type).
The Technology
in the Xenotest® Beta+

Versatile Instrument Functions
– Electrical heating system achieves high temperature values even during dark cycles
– Adjustable blower speed allows for simultaneous control of chamber temperature and black standard temperature
– Ultrasonic humidification system provides precise humidity levels in the test chamber
– Specimen spray system for sample moisture during weathering tests or rack spray system to cool the back of the sample (optional)
– Integrated water tank with automatic refilling function

Ease of Operation with the Touch Screen
– The large color touch screen not only shows you the current status of your test, but also provides a graphic display of the progression of your test parameters
– The memory card interface loads data (e.g. software updates) directly to your test equipment, or allows test data to be downloaded to a PC for further processing
– Program parameters can be read via a serial RS 232 port or a faster USB port
– Digital data transfer reduces electrical interference to improve instrument reliability
– A dynamic memory offers 10 freely programmable and at least 10 preprogrammed weathering test programs, each with up to 12 test cycles

Reliable Sensor Technology
Integrated measuring and control capabilities for precision and reproducibility:
– Rotating XENOSENSIV® sensor for measuring irradiance between 300 and 400 nm and Black Standard Temperature at sample holder level in accordance with ISO/DIN standards
– Stationary sensor for measuring test chamber temperature and relative humidity
The Filtered Xenon Radiation
in the Xenotest® Beta+

In the Xenotest Beta+ solar radiation is simulated by means of filtered light from a xenon lamp. The highly ageing-resistant XENOCHROME® filters have a recommended life-time of 25000 hours and meet the requirements associated with a wide variety of standards and test specifications.

XENOCHROME 300 or 320 with ten filters of special coated quartz glass simulates the solar radiation as specified in CIE publication No. 85, Table 4, or behind window glass, according to test requirements in the paint and plastics industries.

UV and visible light wavelengths pass XENOCHROME filters while IR radiation is reflected and absorbed by three black absorbers. Heat is dissipated by air passing along the xenon lamp and over black absorber panels in the optical filter system. This prevents any unwanted temperature increase.

The values, illustrated in both graphs, are normalized at 550 W/m² in the wavelength range 300 to 800 nm.

1. Xenon lamp (3x)
2. Filter lantern
3. Absorber (3x)
4. Filters (10x)
5. Outer cylinder
Temperature Regulation
in the Xenotest® Beta+

The Xenotest Beta+ offers the choice of controlling test chamber temperature (CHT) or Black Standard Temperature (BST), or both simultaneously.

The lower range of the test chamber temperature depends on the ambient air temperature in the laboratory: by increasing the lab temperature, the temperature in the test chamber increases accordingly. The black standard temperature is determined by the test chamber temperature and humidity. It is also influenced by the airflow rate, the irradiance and the installed filter system.

By varying the blower speed in the test chamber, it is possible to maintain test chamber and black standard temperature within tight tolerance and within the temperature range. When simultaneously controlling the temperature, the specified test chamber temperature is adjusted with the aid of a regulated air flap to mix metered amounts of cooler ambient air with the warm instrument air, while the desired black standard temperature is regulated by the blower motor fan speed.

Currently, numerous test specifications – particularly in the automotive industry – require simultaneous regulation of the black standard and the test chamber temperature. This type of regulation provides the best possible reproducibility of test results.

Humidity Control in the Xenotest Beta+

The relative humidity is adjusted uniformly across the sample level by means of an optimized airflow in the test chamber and is dependent on the test chamber temperature and the test chamber fan frequency.
Optional Accessories
for the Xenotest® Beta+

**XenoCal® Irradiance Sensor/Combination Sensor**

to measure, calibrate and adjust irradiance and to measure radiant exposure:
- XenoCal BB 300–400 | 300–400 nm (UV)
- XenoCal BB 300–400 BST (in addition BST)

**XenoCal Irradiance Sensor**

to measure irradiance and radiant exposure:
- XenoCal WB 300–800 | 300–800 nm (UV+VIS)
- XenoCal NB 340 | 340 nm

**XenoCal BST**
to measure, calibrate and adjust black standard temperature

**XenoCal WST**
to measure, calibrate and adjust white standard temperature

**Various Specimen Holders**
to test, for example, samples with backings, panels, or PET bottles

**Thermoprinter**
for printout of protocols regarding instrument and program data as well as test parameters at pre-selectable intervals
Xenotest® Beta+ Features

Air-cooled xenon lamp with power output (3)
XENOSENSIV® combination sensor for measuring and controlling irradiance between 300 and 400 nm and Black Standard Temperature at sample holder level
Temperature control selectable by test chamber or Black Standard Temperature or both simultaneously
Air Flow control to regulate the Black Standard Temperature
Controlled relative humidity
Ultrasonic humidification system
Specimen Spray System
Non-turning mode
Microprocessor control
Color touch screen to show the current test status and graphic display of the progression of your test parameters
Parameter check
Program-assisted self calibration with the optional XenoCal® sensor
Serial interface RS232
Memory card interface
USB slave port
4000 cm² exposure area
CE certified
Rack spray system
XenoCal BB 300-400 irradiance sensor
XenoCal BB 300-400 BST
XenoCal WB 300-800 irradiance sensor
XenoCal NB 340 irradiance sensor
XenoCal BST Black Standard Thermometer
XenoCal WST White Standard Thermometer
Thermoprinter

Xenotest Beta+ Specifications

Irradiance in the wavelength 300–400 nm (based on the sample holder level)

Filter System

- XENOCHROME® 300 (daylight) 45–120 W/m²
- GMW 3414TM
- XENOCHROME 320 (behind window glass) 35–100 W/m²

Temperature/Humidity Range

- Test chamber temperature* up to 80 °C
- Black standard temperature* up to 130 °C
- Relative humidity* 10–95%

* Depending on chosen filter system; irradiance setting, as well as the environmental conditions

Utility Requirements

Electrical 400 V ±10 %, 50/60 Hz (3P,N,PE) AC | CEE (32 A, 5 pol. 6h)

- Amperage 16 A
- Power consumption 12 kVA, max.
- Nominal rating of the xenon lamps 2800 VA, max.
- Cooling air requirement for the xenon lamps 200 m³/h, max.
- Cooling air requirement for the test chamber 200 m³/h, max.
- Purified water for the specimen spray system 0.7 l/min
- Purified water for rack spray 0.7 l/min
- Purified water for humidity 0.07 l/min

Sample Capacity

Sample holder Dimension Number
height x width holders/Set

- »Standard« (for 1 sample/holder) 31 x 8 cm 16
- »Special 3 segments« (for 3 samples/holder) 10 x 6.8 cm 16
- »Special 2 segments« (for 2 samples/holder) 13.5 x 4.5 cm 28

Dimensions and Weight

Width x Depth x Height 900 x 1200 x 1800 mm

- Weight approx. 400 kg