SUNTEST®

XENON TEST INSTRUMENTS

Lightfastness
Weatherfastness
Photostability

AMETEK®
MEASUREMENT & CALIBRATION TECHNOLOGIES

ATLAS®
MATERIAL TESTING SOLUTIONS
ACCELERATING YOUR EXPERTISE

SUNTEST®

THE WORLD'S MOST WIDELY USED FLATBED WEATHERING INSTRUMENTS

Weathering is the adverse response of a material or product to climate, often causing unwanted and premature product failures. The main factors of weathering are sunlight, temperature and moisture. Sunlight initiates the degradation process and drives it forward, interacting with temperature and humidity to cause adverse effects. The objective of artificial weathering is to reproduce the degradation processes and resulting damage that occurs naturally in a laboratory under accelerated and reproducible conditions.

Since 1976, SUNTEST equipment has been the most widely used test chambers for accelerated material testing. Material changes due to the effects of light, temperature and moisture, such as color fading, embrittlement or yellowing can be simulated realistically within days or weeks as they would occur naturally over the course of months or years in their end-use environment.

Reliable accelerated flatbed xenon exposure systems.

These easy-to-use xenon instruments are perfect for R&D testing of new materials for various end use environments, for standardized quality control (on incoming materials and components) or pharmaceutical drug development.

Generating repeatable and reproducible test results (again and again) is the hallmark of Atlas instruments and the SUNTEST family lives up to that standard. Every SUNTEST instrument is designed to provide superior irradiance uniformity from filtered xenon lamps specifically designed to closely simulate daylight. Atlas xenon lamps have proven to deliver more consistent daylight simulation over the life of the lamp than any other xenon light source.

The right instrument for your testing needs.

The SUNTEST family consists of three sizes to meet your testing needs. The two benchtop models CPS+ and XLS+ offer control of light and temperature and are particularly useful for aging tests of smaller specimens.

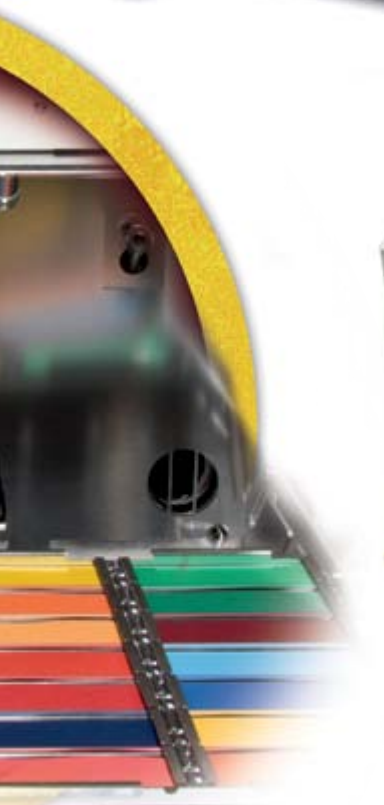
The larger model XXL+ comes fully equipped with automatic control of light, temperature and humidity and meets international standards for weathering testing.

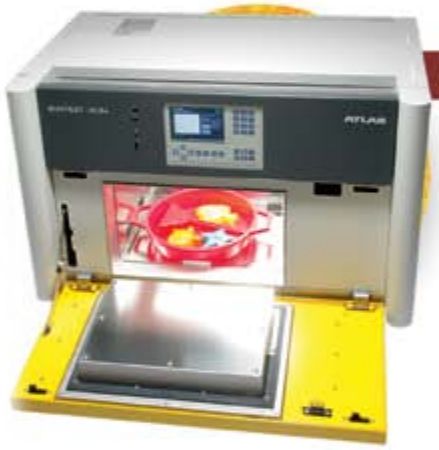




XXL/XXL+/XXL+ FD

- 3000 cm² exposure area
- Touch screen user interface available in multiple languages and online programming & monitoring features
- Irradiance control at 300–400 nm, 340 nm, or 420 nm
- Simultaneous control of Chamber Air Temperature (CHT) and Black Standard Temperature (BST), or Black Panel Temperature (BPT)
- Automatic control of relative humidity
- Specimen spray
- Adaptable/detachable chiller for specimen cooling (XXL+ FD)
- Built in water reservoir with automatic refill connection
- Access Port 3.0 x 2.5 cm for use of external sensors





XLS+

- 1100 cm² exposure area
- Touch screen user interface in multiple languages and online programming & monitoring features
- Irradiance control at 300-400 nm, 340 nm or 300-800 nm/Lux
- Automatic control of BST
- Monitoring and display of CHT
- Monitoring and display of relative humidity
- Specimen wetting by spray or immersion
- Specimen cooling by water-cooled sample table or chiller

CPS+

- 560 cm² exposure area
- User interface with 4-line display in multiple languages
- Irradiance control at 300-400 nm, 340 nm or 300-800 nm/Lux
- Automatic control of BST
- Monitoring and display of CHT
- Monitoring and display of relative humidity
- Specimen wetting by immersion
- Specimen cooling by water-cooled sample table or chiller

User-friendly control system

XXL/XXL+/XXL+ FD/XLS+

The large TFT full color 5.7" touch screen for easy viewing is available in 13 languages supporting error-free operation in all labs around the world.

- Easy programming, plus quick start of test programs
- Pre-programmed international standard weathering tests
- Space for 10 custom test programs
- Graphic display of the progression of all test parameters
- Automatic test countdown in kJ/m²
- Advanced auto-start functions
- Fast and precise "do it yourself" calibration routines for irradiance and temperature using SunCal™ sensors

Atlas XenoTouch Add-ons

for SUNTEST XXL / XXL+ / XXL+ FD/XLS+

Additional software modules activate the Ethernet interface on the instrument control board. Online features help make your daily lab work easier:

Add-on 1:
Remote Control

Conveniently program the instrument remotely. Security protection controlled via access rights

Add-on 2:
E-Mail Service

Receive important system information and error messages quickly and securely via E-Mail

Add-on 3:
Online Monitoring

Online access to instrument status reports via a web browser

Accurate monitoring and control of test parameters

CPS+

Large 4-line display for easy viewing is available in 11 languages supporting error-free operation in all labs around the world.

- Clearly arranged programming elements with arrow keys for easy scrolling through programming menus
- Two pre-programmed lightfastness / weathering tests
- Space for 6 custom test programs
- Parameter check for set tolerances
- Automatic test countdown in kJ/m²
- Fast and precise “do it yourself” calibration routines for irradiance and temperature using SunCal® sensors

Multiple languages supporting error-free operation around the world:

- Willkommen
- 歡迎*
- Bienvenue
- Benvenuto
- Witaj
- Bienvenidos
- Welcome
- Добро пожаловать**
- 환영받는*
- Welkom*
- Vítejte
- Fogadtatás
- 歡迎
- Hoşgeldiniz*
- Boas-vindas**

* Languages not available on SUNTEST® CPS+ model
** Languages not available on SUNTEST® XXL/XXL+ and XLS+ models

Superior chamber design to meet your testing needs

Accurate and Repeatable Test Results

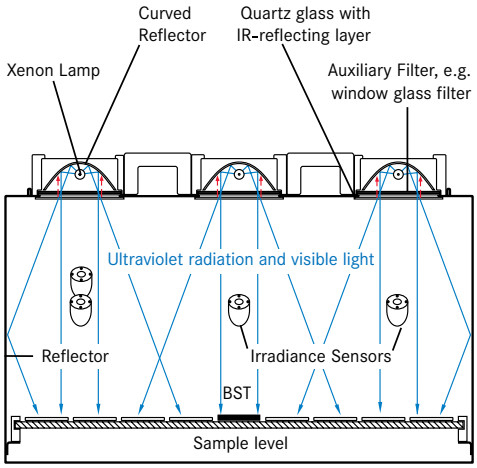
An accelerated weathering instrument must combine a high quality chamber with fully developed light technology, precise sensors and intelligent control algorithms. A finely tuned calibration concept permits individual components to interact seamlessly with one another. As a result, you achieve high quality test conditions for repeateable test results.

Solar Simulation

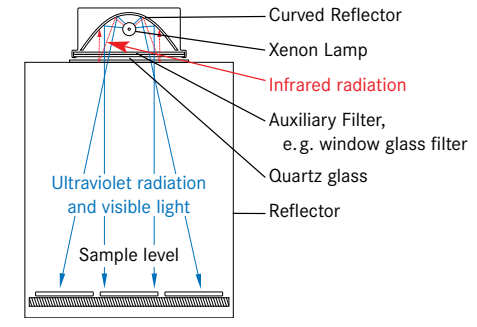
Atlas xenon lamps deliver consistent, even irradiance and a stable spectral power distribution. The spectral output closely matches solar radiation. The distinct advantage of the simulation of the total solar spectrum lies in the realistic reproduction of the comparable natural sample heating due to VIS and IR radiation correlated to sample color.

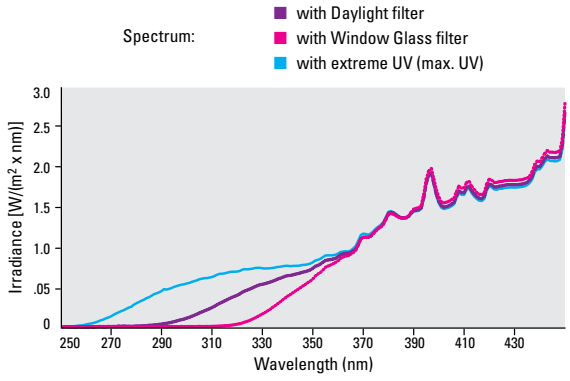
Atlas offers a range of filters to meet industry standards such as ISO 4892-2 and ASTM G155 including both daylight and daylight behind window glass filters. Special filters tailored to specific applications are also available (please see “Optional Accessories” section).

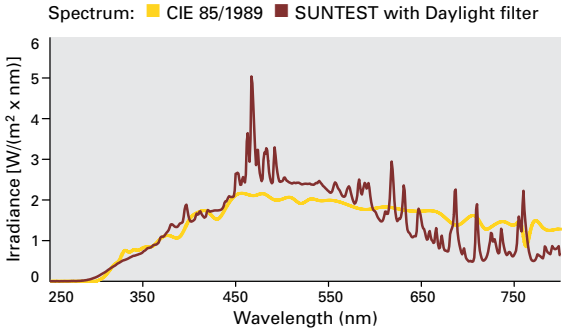
Cross Section: XXL+ Test Chamber and Lighting System



Cross Section: XLS+ Test Chamber and Lighting System





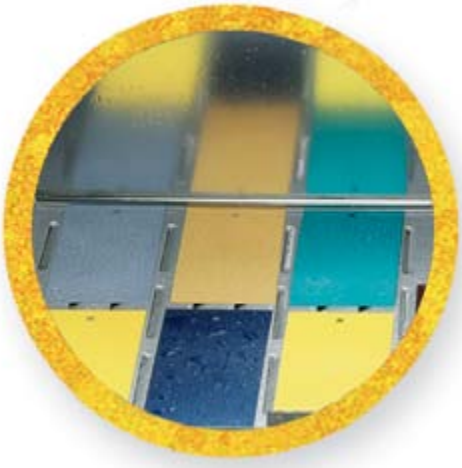


Quality Lamps

All Atlas xenon lamps have been specially designed for use in weathering devices. This ensures optimal spectral power distribution across the lamp's entire 1500 hour service life. Our fully assembled "plug & play" light cassette makes replacing lamps and filters easy.

Temperature Control

Temperature plays an important role in the rate in which a material degrades. The most relevant temperature parameter with regard to weathering tests is the black standard temperature. All SUNTEST® models measure and control the maximum surface temperature of a black sample following ISO 4892-1.



Humidity Control

The third major factor of weathering is moisture which can represent humidity, dew and rain. All SUNTEST XXL models come standard with specimen spray. Optional specimen spray and immersion accessories are available for the SUNTEST XLS+, and an immersion unit is also available for the CPS+ model.

Relative humidity can be controlled in the SUNTEST XXL+ via an ultrasonic humidification system that produces a homogenous steam like dispersion. A built-in 60 litre water reservoir ensures continuous operation over several days without refill.

Optional accessories extend the test capabilities of the SUNTEST Family

Specimen spray unit for simulated weathering tests (XLS+)

- Specimen spray for specimens such as paints or plastics to simulate exposure to moisture
- Programmable spray periods
- Water level indicator
- Automatic refill

Immersion units for simulated weathering tests (CPS+ and XLS+)

- Immersion of specimens such as paints or plastics to simulate exposure to moisture
- Programmable immersion intervals
- Water temperature control from 30 °C to 55 °C
- Water level indicator
- Automatic refill

Chiller units for chamber air refrigeration (CPS+, XLS+, and XXL+ FD)

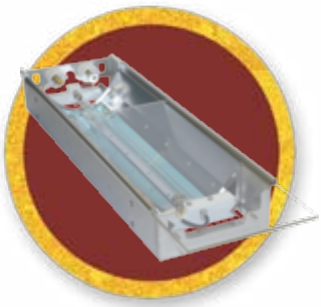
- For photostability testing of Consumer Goods, Pharmaceuticals, and Cosmetics
- Lowest achievable CHT during light cycle: approx. 10 – 15 °C (depending on method and laboratory conditions)
- CFC-free refrigerants
- Digital control (XLS+ and XXL+ FD only)

Water-cooled sample table for contact cooling (CPS+ and XLS+)

- Uniform cooling of samples through direct contact with the cooling surface
- Recommended for exposure of thermosensitive substances
- Frequently used for testing cosmetics and pharmaceutical samples

SunTray (CPS+)

- Fast and secure specimen exchange during continuous light operation
- Recommended for tests according to Colipa In Vitro UVA (2011)
- Holds six standard samples (50x50x2 mm)
- Sub-frame design tailored for SUNTEST CPS+



Flat Optical Filters (XXL+/XLS+)

- Daylight Filter (non-aging) for simulation of outdoor solar radiation
- Window Glass Filter (non-aging) for simulation of indoor solar radiation behind 3 mm window glass
- Solar ID65 Filter for simulation of indoor solar radiation behind 6 mm window glass
- StoreLight Filter for simulation of artificial supermarket light (only XLS+)

Optical Filter Dishes (CPS+)

- Daylight Filter for simulation of outdoor solar radiation
- Window Glass Filter for simulation of indoor solar radiation behind 3 mm window glass
- Solar ID65 Filter for simulation of indoor solar radiation behind 6 mm window glass
- StoreLight Filter for simulation of artificial supermarket light
- Solar Standard Filter simulating solar radiation outdoor according to DIN 67501

SunCal™ Calibration Sensors (XXL+/XLS+/CPS+)

Simultaneous irradiance and BST calibration sensors available with different wavelength sensitivities:

- SunCal BB 300-400 BST
- SunCal WB 300-800 BST
- SunCal LUX BST

SUNTEST instruments are used successfully in numerous industries and many different applications

Flatbed testing technology allows for the testing of almost any shape and size. The optional accessories for lowering the sample temperature are helpful tools for photostability testing of thermal sensitive products, pharmaceuticals or cosmetics.

The extensive range of accessories and optical filter systems makes it possible to fulfill specific industrial test methods (ICH, COLIPA) or to simulate specific environments like outdoor, indoor or light in a warehouse or store (see Optical Filters section).

	The SUNTEST family is designed to meet the following standards:
General	ASTM G151, G155
Building	ASTM C1442, C1501, D2565, D4637, D4811, D6083, D6662, ISO 11431, Qualicoat, RAL – RG 631
Cable/wire	ASTM D1248
Chemical	EPA/ASTM E896
Coatings	ASTM D3451, D3794, D6577, D6595, D6695, ISO 11341, Qualicoat, RAL-RG631
Cosmetic	COLIPA In-Vitro UVA (2011), ISO 24443:2012
Geotextile	ASTM D4355
Graphic	ASTM D904, D3424, D4303, D5010, D6551, D6901, F2366
Medical	ISO 4049, 7491, 11979-5
Plastics	ASTM D2565, D4101, D4459, D5071, ISO 4892-1, 4892-2
Pharma	ICH Q1B, Q5C
Textile	AATCC TM169, ISO 105-B10

This table is a representative compilation of global standards that can be met with SUNTEST instruments.
For more information on specific models or specific standards, contact your local Atlas representative.
Please note: Not all SUNTEST models fulfill all standards or all methods within individual standards.




SUNTEST® Features			XXL	XXL+	XXL+ FD	XLS+	CPS+
Air-cooled xenon lamps			1700 W (3)	1700 W (3)	1700 W (3)	1700 W (1)	1500 W (1)
Specimen rack capacity			3000 cm^2	3000 cm^2	3000 cm^2	1100 cm^2	560 cm^2
Specimen tray size in cm x cm			79x39	79x39	79x39	39x30	28x20
SUNSENSIV sensor for controlling irradiance at 300-400nm / 340nm			●	●	●	●	●
SUNSENSIV sensor for controlling irradiance at 300-800nm / Lux			N/A	N/A	N/A	■	■
SUNSENSIV sensor for controlling irradiance at 420nm			■	■	■	N/A	N/A
Irradiance ranges							
	Daylight Filter	Window Glass Filter					
300-400 nm	40-65 W/m^2	30-60 W/m^2	●	●	●	●	●
340 nm	0.34-0.62 $W/(m^2nm)$	0.26-0.56 $W/(m^2nm)$	●	●	●	●	●
420 nm	0.75-1.45 $W/(m^2nm)$	0.65-1.30 $W/(m^2nm)$	●	●	●	N/A	N/A
300-800 nm	250-600 W/m^2	250-600 W/m^2	N/A	N/A	N/A	■	N/A
300-800 nm	250-765 W/m^2	250-765 W/m^2	N/A	N/A	N/A	N/A	■
LUX	45-130 klx	45-130 klx	N/A	N/A	N/A	■	■
Automatic CHT control *			up to 70° C	up to 70° C	up to 70° C	N/A	N/A
Automatic simultaneous BST and CHT control			●	●	●	N/A	N/A
BST range *			45-100° C	45-100° C	25-100° C	45-100° C	45-100° C
BPT range *			45-95° C	45-95° C	25-95° C	45-95° C	N/A
Automatic blower speed control			●	●	●	●	●
Ultrasonic humidification system			N/A	●	●	N/A	N/A
Automatic humidity control			N/A	●	●	N/A	N/A
Specimen spray system			●	●	●	N/A	N/A
Integrated water reservoir (60 l)			●	●	●	N/A	N/A
Microprocessor control			●	●	●	●	●
TFT full color 5.7" touch screen control panel display of all test parameters			●	●	●	●	N/A
Multiple languages available			●	●	●	●	●
Graphic display of the progression of your test parameters			●	●	●	●	N/A
Parameter check for set tolerances			●	●	●	●	●
Automatic test countdown in kJ/m^2			●	●	●	●	●
Data acquisition via interfaces RS232, USB, or memory card			●	●	●	●	RS232
Software updates via memory card			●	●	●	●	●
Internal memory chip for storing instrument data			●	●	●	●	N/A
Main power disconnect switch			●	●	●	●	●
CE compliant			●	●	●	●	●
Instrument dimension (WxDxH) in cm			90x91x172	90x91x172	90x91x172	90x54x62	78x35x35
XenoTouch add-ons for online programming and monitoring			■	■	■	■	N/A
SunCool chamber air refrigeration			■	N/A	●	■	■
SunSpray specimen spray system			N/A	N/A	N/A	■	N/A
SunFlood test chamber immersion system			N/A	N/A	N/A	■	■
SunTray sample exchanger			N/A	N/A	N/A	N/A	■
Water-cooled sample table for contact cooling			N/A	N/A	N/A	■	■
SunCal™ BB 300-400 BST Irradiance+Temperature Sensor			■	■	■	■	■
SunCal™ WB 300-800 BST Irradiance+Temperature Sensor			■	■	■	■	■
SunCal™ LUX BST Irradiance+Temperature Sensor			■	■	■	■	■

● Standard ■ Optional

* All ranges may not be achieved depending on other instrument parameter set points.

Specifications, features and standards are subject to change without notice.

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