SUNTEST®

XENON TEST INSTRUMENTS

Lightfastness
Weatherfastness
Photostability

ATLAS®
MATERIAL TESTING SOLUTIONS

Experience. The Atlas Difference.

SUNTEST®

WORLD'S MOST 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.

The SUNTEST® family offers flatbed xenon exposure systems to test the long-term effects that light, heat and moisture will have on your products in their end-use environment. Since 1976, the SUNTEST has been the world's most used brand of flatbed xenon exposure systems.

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.

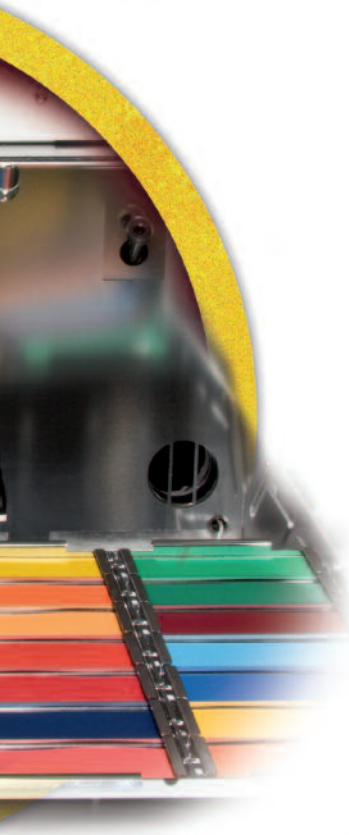
The right instrument for your testing needs.

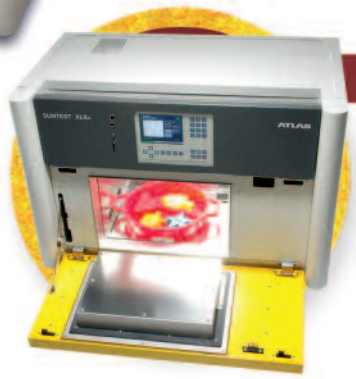
The SUNTEST family consists of three sizes to meet your testing needs. The smallest models, the CPS/CPS+, offer a choice of manual or microprocessor control. The largest and midsized models (XXL, XXL+ and XLS+) come with our easy-to-use, color touch screen.

The right model for you is based on your volume of testing needed, the level of control required and available budget. Customize your SUNTEST to match your needs with a selection of useful accessories and options.

XXL/XXL+

- 3000 cm² exposure area
- Touch screen control and colour display
- Irradiance control at 300–400 nm, 340 nm, or 420 nm
- User selectable temperature control: Chamber Temperature (CHT) or simultaneous CHT and Black Standard Temperature (BST)
- Measurement, control and display of relative humidity (XXL+ only)
- Built in 60 litre water reservoir with connection for automatic refill (XXL+ only)
- Specimen spray





XLS+

- 1100 cm² exposure area
- Touch screen control and color display
- Irradiance control at 300–400 nm, 340 nm, 300–800 nm / LUX
- Measurement, control and display of BST (Black Panel Temperature optional)
- Monitoring and display of CHT
- Sample wetting by spray or immersion
- Sample cooling by water-cooled sample table or chiller

CPS+

- 560 cm² exposure area
- Keypad control system with 2-line LCD display
- Irradiance control at 300–800 nm
- Monitoring, control and display of BST
- Monitoring and display of CHT
- Sample cooling by water-cooled sample table or chiller

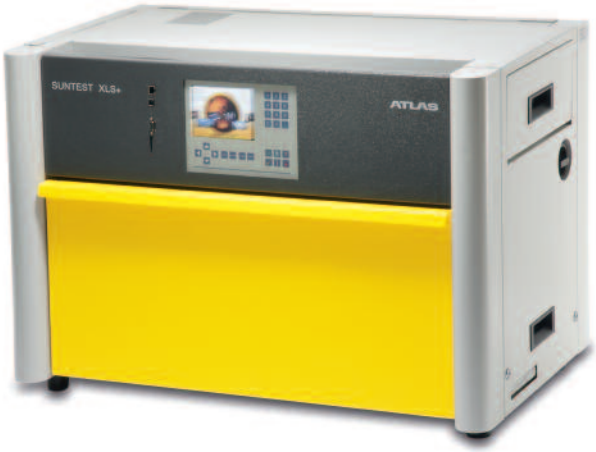
CPS

- Irradiance control at 300–800 nm
- Manually adjustable irradiance
- Monitoring of irradiance with optional XenoCal® sensor
- Monitoring of Black Standard Temperature (BST) with optional XenoCal sensor
- Sample cooling by water-cooled sample table or chiller

SUNTEST®

MEASUREMENT & CONTROL

Reliable and user-friendly control system



XXL/XXL+/XLS+

- Multi lingual touch screen (10 user-selectable languages) for easy operation and programming
- Digital, state-of-the-art control for reliable and repeatable testing
- Memory card and PC interfaces for system updates and data storage
- Advanced auto-start functions for safe and secure operation
- Fast, precise “do-it-yourself” calibration routines for irradiance and temperature via XenoCal® technology

Accurate monitoring and control of test parameters

CPS+

The keypad control of this instrument delivers proven microprocessor control and monitoring of all test parameters.

- Clearly arranged operating and control elements with arrow keys for fast and easy scrolling
- Two-line display for test parameters and to check safe operation
- Storage capacity for user-defined test methods
- Fast and precise, “do it yourself”, calibration routines of irradiance and temperature through XenoCal technology

CPS

The CPS is the basic solution for those who require the best simulation of daylight or daylight behind window glass at the lowest cost.

- Infinitely variable irradiance via control knob
- Integrated hour counter to monitor total operating time

Superior chamber design to meet your testing needs

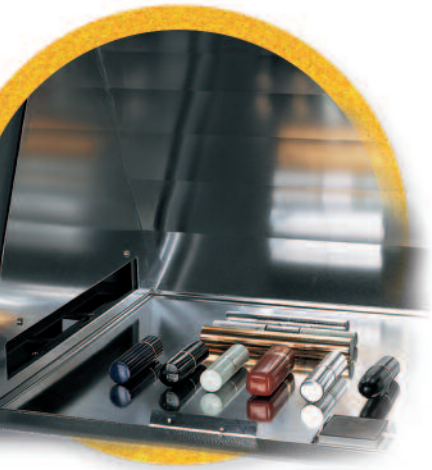
Accurate and Repeatable Test Results

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 outstanding test parameter uniformity at the sample level.

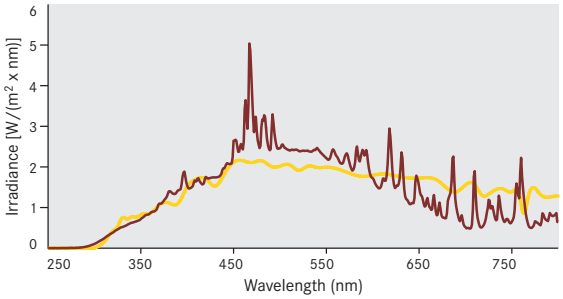
Solar Simulation

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 colour.

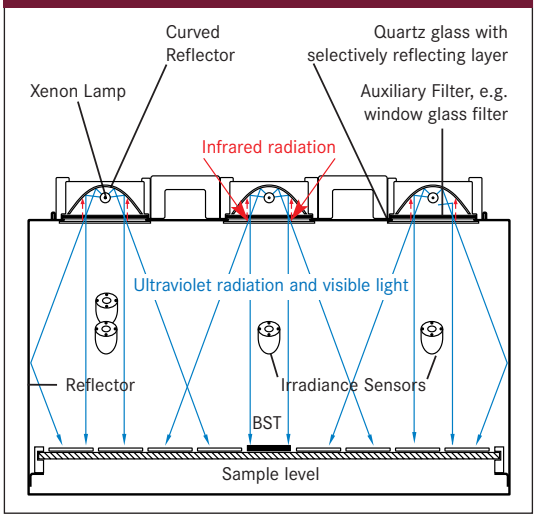
Atlas offers a range of filters to meet industry standards such as ISO 4892-2 and ASTM G155 including both daylight and daylight behind window glass filters. Special filters tailored to specific applications are also available (please see "Optional Accessories" section).



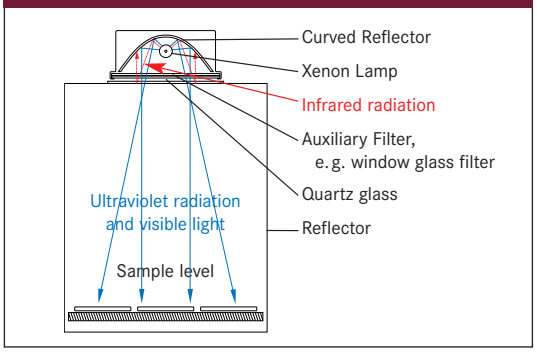
Spectrum: CIE 85/1989 SUNTEST with Daylight filter



Cross Section: XXL/XXL+ Test Chamber and Lighting System



Cross Section: XLS+ Test Chamber and Lighting System



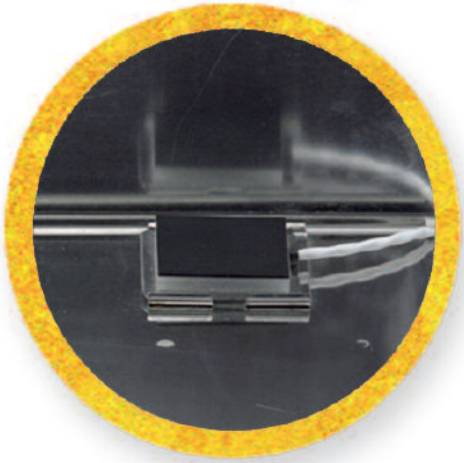
XENON LAMPS & CONTROL

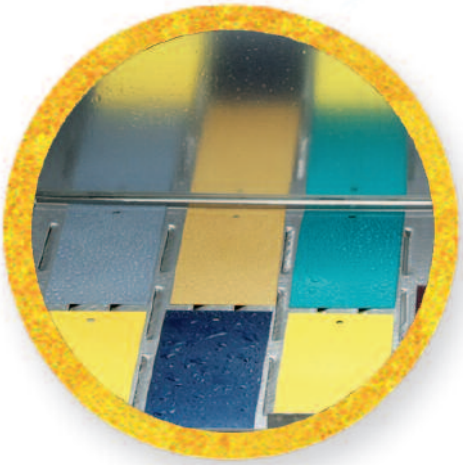
Quality Lamps

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 (light cartridge) makes replacing lamps and filters easy.

Temperature Control

Temperature plays an important role in the speed 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. SUNTEST XXL/XXL+ come standard with sample wetting. Optional sample spray and sample immersion accessories are available for the SUNTEST XLS+ while an immersion unit is also available for the CPS/CPS+ model.

Relative humidity can be controlled in the SUNTEST XXL+ via an ultrasonic humidification system that produces a homogenous steam like dispersion. The built in 60 litre water reservoir ensures independent operation over a period of 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 samples such as paints or plastics to simulate exposure to moisture
- Spray periods programmable between 1 and 999 minutes
- Water level indicator
- Automatic refill

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

- Immersion of samples such as paints or plastics to simulate exposure to moisture
- Immersion intervals selectable between 1 and 999 minutes
- Continuous flooding
- Water temperature control from 30 °C to 40 °C
- Water level indicator
- Automatic refill (XLS+)

Chiller to reduce test chamber/sample temperature (CPS/CPS+ and XLS+)

- Recommended for testing the photostability of pharmaceutical or cosmetic products
- Lowest achievable CHT during light cycle: approx. 10–15 °C (depending on method and laboratory conditions)
- CFC-free refrigerants
- Digital control (XLS+ only)

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

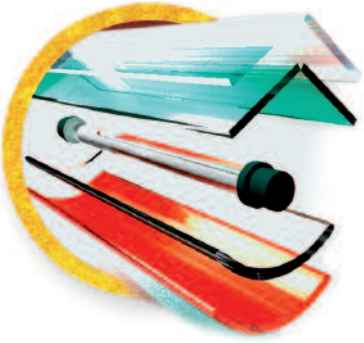
- Uniform cooling of samples through direct contact with the cooling surface
- Recommended for exposure of thermosensitive substances
- Frequently used for testing cosmetics and pharmaceutical samples

XenoCal® irradiance sensor

- Irradiance calibration and measurement at the sample level
- Analysis and graphical display of measured values on a PC or laptop via XenoSoft®
- Sensors available with different wavelength sensitivities:
  - XenoCal LUX
  - XenoCal LUX BST
  - XenoCal BB 300–400
  - XenoCal BB 300–400 BST
  - XenoCal WB 300–800
  - XenoCal WB 300–800 BST
  - XenoCal NB 340 and 420

XenoCal BST and XenoCal WST sensor

- Calibration and measurement of Black Standard Temperature (BST) and measurement only of White Standard Temperature (WST) at the sample level
- Analysis and graphical display of measured values on a PC or laptop via XenoSoft



Auxiliary Filters

- Auxiliary Filter for simulation of natural sunlight (CIE 85)
- Window Glass Filter for the simulation of natural sunlight behind 3 mm glass
- Solar ID65 Filter for the simulation of natural sunlight behind window glass as specified by the pharmaceutical industry (ICH guidelines)
- Store Light Filter simulating light conditions inside a shop, store, or supermarket

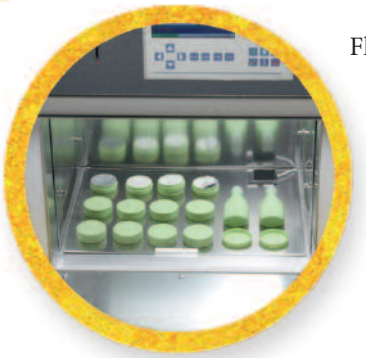
SunTray (CPS/CPS+)

- Fast and secure sample exchange during continuous operation
- Commonly used for tests according to COLIPA in vitro 2007A method

SUNTEST®

APPLICATIONS & STANDARDS

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 Auxiliary Filters section).

The SUNTEST family is designed to meet the following standards:

Per Industry	
General	ASTM G151, G154, 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 determination of UVA protection 2007A
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 TM16, TM169

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, that not all SUNTEST models fulfill all standards.




			XXL	XXL+	XLS+	CPS	CPS+
Air-cooled xenon lamp (number of lamps)			3	3	1	1	1
Maximum exposure area (cm^2)			3000	3000	1100	560	560
Touch screen control panel and display			■	■	■	N/A	N/A
Keypad control and 2-line LCD display			N/A	N/A	N/A	N/A	■
Manually adjustable irradiance			N/A	N/A	N/A	■	N/A
Irradiance, measurement and control range							
	Daylight Filter	Window Glass Filter					
300–400 nm	27–65 W/m^2	25–50 W/m^2	■	■	■	N/A	N/A
300–800 nm	250–765 W/m^2	250–765 W/m^2	N/A	N/A	□	■	■
340 nm	0.32–0.60	0.26–0.56	■	■	■	N/A	N/A
420 nm	0.75–1.44	0.65–1.28	■	■	N/A	N/A	N/A
LUX	45–130 klx	45–130 klx	N/A	N/A	□	N/A	N/A
Simultaneous control of BST and CHT			■	■	N/A	N/A	N/A
Measurement, control and display of BST			■	■	■	N/A	■
Measurement, control and display of BPT			□	□	□	N/A	N/A
BST Range			45-100 °C	45-100 °C	40-100 °C	N/A	35-100 °C
Control of CHT			up to 70 °C	up to 70 °C	N/A	N/A	N/A
Measurement and control of RH			N/A	up to 95%	N/A	N/A	N/A
Ultrasonic humidification system			N/A	■	N/A	N/A	N/A
Specimen spray system			■	■	□	N/A	N/A
Immersion unit			N/A	N/A	□	N/A	□
SunCool chiller			N/A	N/A	□	□	□
Water-cooled sample table			N/A	N/A	□	□	□
SunTray sample exchanger			N/A	N/A	N/A	□	□
Serial interface RS232 for continuous data logging			■	■	■	N/A	■
Memory card interface for continuous data logging			■	■	■	N/A	N/A
Ethernet for future network operations			■	■	■	N/A	N/A
XenoCal sensors for irradiance calibration in W/m^2			□	□	□	□	□
XenoCal sensors for illuminance calibration in klx			N/A	N/A	□	N/A	N/A
XenoCal sensors for BST calibration			□	□	□	N/A	□
XenoCal sensors for WST (measurement only)			□	□	□	N/A	□
Physical Dimensions W x D x H in cm			90 x 91 x 172	90 x 91 x 172	90 x 54 x 62	78 x 35 x 35	78 x 35 x 35
Floor weight			280 kg	290 kg	90 kg	29 kg	29 kg

■ Standard □ Optional

We reserve the right to make changes to equipment and systems in response to advances in technology and modify parameters.

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