ATLAS
MATERIAL TESTING SOLUTIONS
ACCELERATING YOUR EXPERTISE

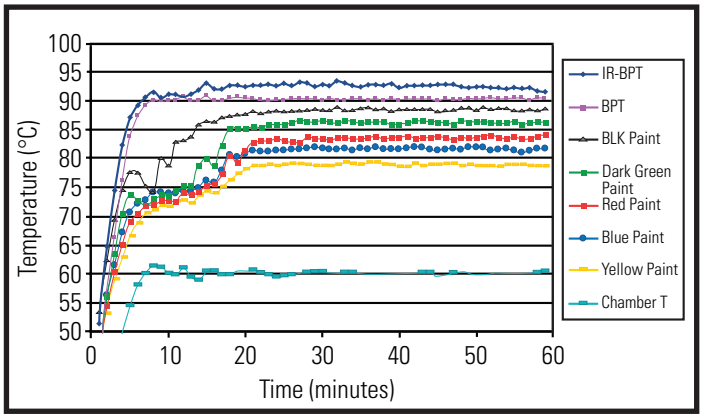
S³T™ Specific Specimen Surface Temperature System

What is it? What are the benefits?

S³T is a system that measures the specific specimen surface temperature during accelerated laboratory weathering.

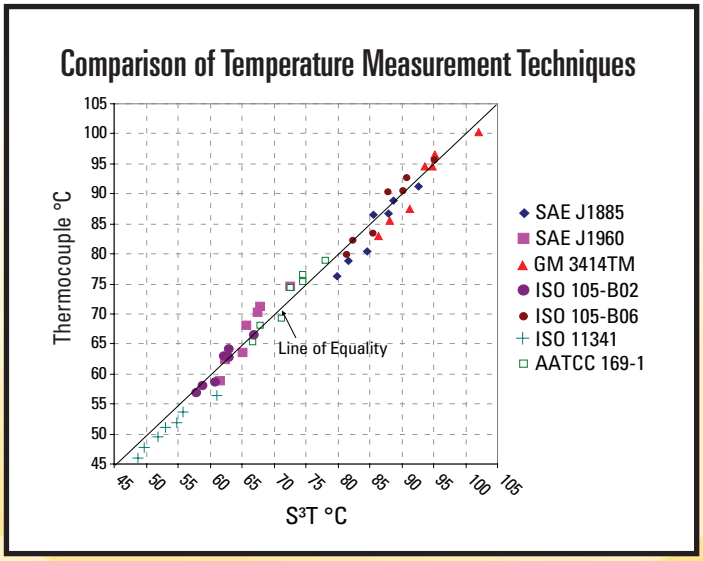
Surface temperatures in photodegradation and weathering

- Surface temperature is a critical factor for the rate of photochemical reactions
- Specimen properties (color, IR absorbance, material density, thickness, sample backing) influence the surface temperature and the degradation behavior
- The measurement of individual surface temperatures with thermocouples is complex and not practical for multiple samples especially in accelerated weathering instruments
- Surface temperatures are usually neglected or roughly estimated based on black and white standard or panel reference temperatures
- The S³T System facilitates the continuous determination of multiple individual specimen surface temperatures during the whole exposure



The S³T System helps to optimize test parameters and provides:

- Better reproduction of natural conditions (heat uptake, color distribution)
- Better control of test parameters to avoid overheating of specific specimens
- Continuous tracing of the specific sample temperature allowing for the immediate detection of property changes such as darkening without disruption of the test
- Investigation of specific sample characteristics e.g. cool pigments, IR-reflective coatings or effectiveness of heat and light stabilizers



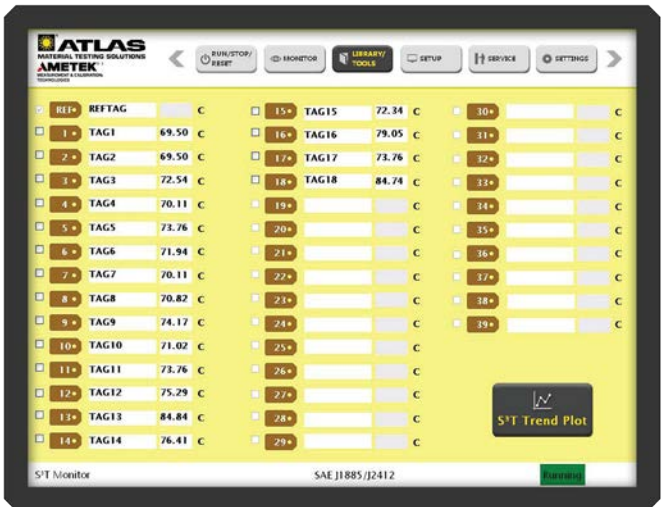
AMETEK®
MEASUREMENT & CALIBRATION TECHNOLOGIES

Knowing the surface temperature of materials assists experimenters with the following important analyses:

- Ranking of materials
- Comparison between different exposures
- Estimation of theoretical acceleration factors (based on the Arrhenius concept)
- Determination of activation energies of photochemical degradation reactions
- Reproducibility of weathering data
- Planning and evaluation of correlation studies

S³T System design details:

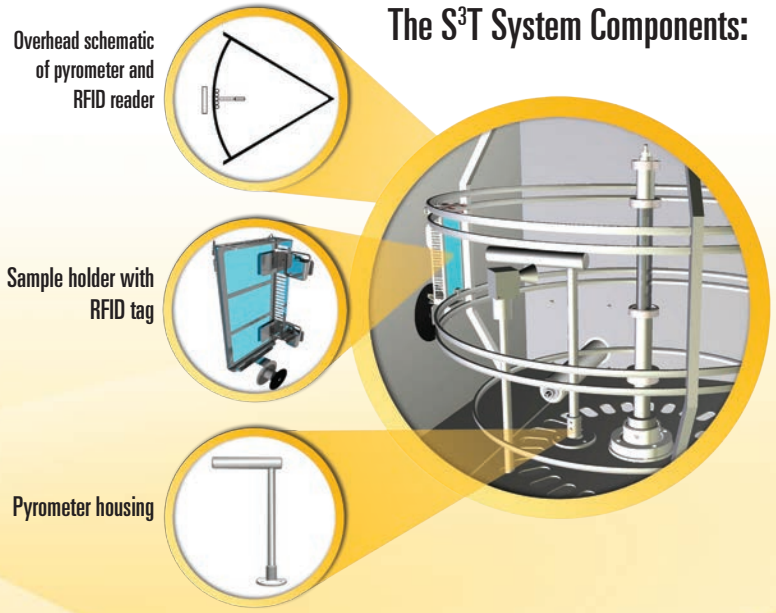
- The core of the S³T System is an integrated stationary IR pyrometer which measures surface temperatures based on the radiant emittance of the test specimen
- Calibration of the S³T System is traceable to a recognized standards body
- The accuracy has been validated for various basic standards using thermocouples
- The S³T System can operate continuously during the complete exposure
- The S³T System is available in the Ci4000 and Ci5000 Weather-Ometers



S³T System data collection process:

- Special specimen holders are equipped with an RFID tag
- Specimens rotate around a stationary IR pyrometer
- An RFID reader identifies the center position of each specimen in the middle specimen rack and assigns the individual temperature readings
- S³T temperature data can be viewed in graph or table format using the integrated Weather-Ometer® software
- S³T temperature data can be exported into a spreadsheet for detailed analysis

The S³T System Components:



For additional information, please visit our website at www.atlas-mts.com or send us an email at atlas.info@ametek.com.

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