Starna®

Certified Reference Materials for UV and Visible Spectroscopy

Starna®

Stray light

Stray light can be described as an indication by the instrument of transmitted light at wavelength the monochromator is set to, when in reality there is no light being transmitted through the sample. This apparent transmission is caused by light of other wavelengths than that established by the monochromator being sensed by the detector, and usually results in non-linearity of an absorbance to concentration relationship. The poorer the stray light performance of an instrument the lower the absorbance value at which this correlation begins to deviate from a straight line. Stray light can be a problem at any wavelength but energy throughput of an instrument decreases, for example as you move into the UV region apparent stray light will become an increasing problem.

For the measurement of this fundamental parameter, Starna® offers you the choice of a range of materials in sealed cells.

Inorganic cut-off filters – UV Stray light

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Description: Materials with sharp cut-offs in transmission at specified wavelengths.
Primary Usage: Detection of stray light in the UV region.
Useable range: 200 nm to 390 nm, depending on the material.
Physical Configuration: Far UV quartz cells that have been permanently heat sealed.

Product Description:

Starna® stray light Certified Reference Materials have very sharp transitional (cut-off) spectra, giving excellent filtering characteristics. Hence, below the specified "cut-off" wavelength, any indication of light transmission must be stray light. The test for stray light is important even if the spectrophotometer is not used below 260 nm, because it is an excellent indication of the overall performance of the instrument optics, grating, and deuterium lamp.

Material	Cat. No.	Cut-off	Concentration
Sodium Nitrite	RM-SN	390 nm	5% aqueous
Potassium Iodide	RM-KI	260 nm	1% aqueous
Sodium Iodide	RM-SI	260 nm	1% aqueous
Lithium Carbonate	RM-LC	227 nm	Saturated aqueous
Sodium Chloride	RM-SC	205 nm	1% aqueous
Potassium Chloride	RM-KC	200 nm	1.2% aqueous

All Starna® alkali halide stray light Certified Reference Materials are prepared in accordance with ASTM E-387. These materials, together with the saturated lithium carbonate cell are then filled under controlled conditions, the cells permanently sealed by heat fusion and the values certified by the procedure described below.

Suggestions for Use:

Stray light determinations are run against a water blank supplied with each Certified Reference Material, and the procedure is similar for all materials.

- Set the spectrophotometer wavelength 20 nm above the cut-off wavelength – for example when using potassium iodide set the start wavelength to 280 nm.
- Scan down into the UV region, and record the "peak absorbance" observed below the cut-off wavelength. This is the Instrument Stray Light (ISL) reading for the instrument.

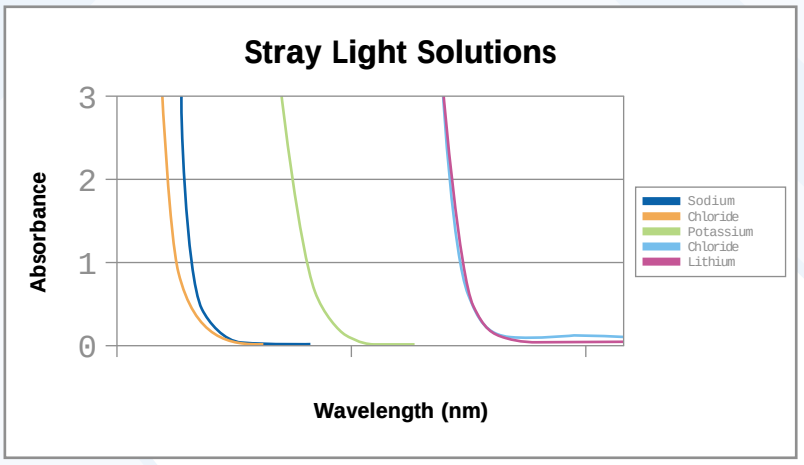
Calibration procedure:

Traceability:

- Primary instrumental linearity is established using the Double Aperture method.
- Primary instrumental wavelength calibration is established using the emission lines from mercury and deuterium sources.
- Additional traceability links to NIST primary materials are established using SRM 2034 holmium oxide (4% m/v) in perchloric acid (10% v/v), SRM 930e and SRM 1930 neutral density glass filters.

Use:

- All appropriate fundamental parameters and procedures relating to measurement, handling and storage are fully documented on the certificate supplied with each Certified Reference Material.



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