

The S20 Superspec Series

Flame Photometers



Spectrolab have provided a range of high performance flame photometers for many years and our current program includes both dedicated 5 element instruments and combined flame with atomic absorption models.

The S20-100 instruments will analyse up to 5 elements in total with simultaneous analysis of 4 elements in a single aspiration.

The S20-200 series can analyse all elements sequentially either using flame emission or atomic absorption or both.

Features

- Features include
- 5 element analysis Na, K, Li, Ca, Ba.
- Sensitivity 1ppm for many elements
- Simultaneously analyse up to 4 elements with a single aspiration
- Calibration curves with up to X20 standards
- Curve fitting using least squares - quadratic
- Save function for multiple calibrations
- Auto ignition
- Auto gas shut down with power failure
- Flow status indicator for gas and air
- Auto correction for interferences
- Microprocessor data storage
- Printer option
- RS232 interface

S20 Superspec series flame photometers

The Spectrolab S20 -100 series 5 element flame photometer is an extremely accurate microprocessor controlled instrument designed for both environmental and medical applications. The S20 will automatically analyse up to four separate elements simultaneously with a single aspiration using very high performance isolating optical filters integrated within the instrument and selected by the system microprocessor.

Elements included as standard are Na, K, and Ca with Li, Ba as an option according to application. Analysis is made using a multi point calibration curve for all 5 elements. Curves are stored in memory and are normalised using segmental and quadratic curve fitting. Elements are measured using just a single aspiration and data is displayed in both ppm and mEq. The model S20 is therefore capable of fast analytical times and excellent sensitivity. Data is shown by way of an alpha-numeric display and parameters are loaded from a multi key membrane keyboard. A parallel port is provided to allow a printer to be connected. Air flow is controlled by way of an integral regulator and power failure safety features include auto gas cut off as standard during power failure

An RS232 interface is also provided

Element	Range	mEq	Linearity	Detection limits	Wavelength	Colour
Sodium Na	1-100ppm	0-200 mEq	1-2%	0.2ppm	589nm	yellow
Potassium K	1-100ppm	0-100 mEq	1-2%	0.5ppm	766nm	violet
Lithium Li	1-100ppm	0-10 mEq	1-2%	0.25ppm	670nm	red
Calcium Ca	1-100ppm	0-5 mEq	1-2%	0.5ppm	622nm	orange
Barium Ba	5-1000ppm		1-2%	1ppm	554nm	green

mEq values are given with appropriate dilution

Flame photometry can be used for many diverse applications and is the preferred method for the analysis of the 5 elements specified. Our instruments are extremely accurate, reliable and can be used in any environment. They are also excellent value for money and are one of the most affordable spectroscopic techniques available today.

Function

A flame photometer consists of a spray unit interfaced to an air supply, a cool flame is provided by a liquid gas supply, a suitable optical filter for each element and a light detector. A sample such as Sodium (Na) will emit a yellow light when heated in a cool flame. The intensity of this light is filtered by a yellow filter and measured. Data is stored for computational purposes by a dedicated microprocessor. After calibration the result is shown in terms of concentration of the element present either in terms of ppm or mEq.

A flame photometer can also employ a monochromator rather than multiple filters. The advantage of this arrangement is that narrower bandwidths are possible providing more accurate data and less inter-element interference. Atomic fluorescence is also possible. Our model S20-300 employs a monochromator which also allows the instrument to measure many other elements by atomic absorption or fluorescence which offers both enhanced sensitivity with an extended range of elements.

A lamp holder is provided to accommodate a wide range of hollow cathode lamps for use when there is a need for atomic absorption spectroscopy. All standard options for AAS are available with this instrument

Just some applications of flame emission photometry

Pollution monitoring	Pharmaceuticals	Environmental controls
Body fluids	Water quality management	Electrolytes
Beverages	Urine	Food
Blood	Agriculture	Serum
Wine	Biomedical	Raw materials
Toxicology	Soil	Animal feed
Cement	Plating	Hospitals

Other examples include

Potassium in fertilizer	Alkali in beverages / beer	Potassium in plants
Calcium in milk	Alkali in cement	Sulphates
Lithium in grease	Potassium in glass	Calcium in food stuff
Sodium in animal feed	Calcium / Sodium in fruit juice	Lithium in blood

Catalogue

S20-100	Model S20 with Na, Ca, K, Li, Ba filters fitted.
S20-200	Model S20 with Na, Ca, K filters fitted.
S20-300	Combined Flame emission. AAS. Fluorescence
S20-1015	Air Compressor
S20-2016	Printer

Filters

S20-1016	Ca Filter
S20-1017	K Filter
S20-1018	Na Filter
S20-1019	Li Filter
20-1020	Ba Filter

Data processing

S20-1031	Printer
S20-1032	Lap top data system
S20-1034	RS232 interface

Calibration Standards

S20-1022	1000ppm Potassium (500ml)	S20-1023	1000ppm Sodium (500ml)
S20-1024	1000ppm Calcium (500ml)	S20-1025	1000ppm Lithium (500ml)
S20-1026	1000ppm Barium (500ml)	S20-1027	Cleaning Solution (500ml)

Specifications

Power	115V AC - 240V AC
Air	6 litres / min @14psi
Weight	10 kgs

Regulators

S20-1017	Propane cylinder regulator
S20-1018	Butane cylinder regulator
S20-1019	Natural gas cylinder regulator

Spares

S20-1035	Spares for two years
S20-1036	Inlet tube 500mm
S20-1037	Cleaning Wire

CAT20154



sales@spectrolab.eu - www.spectrolab.co.uk

Oxford House, 20 Oxford Street, Newbury, Berkshire RG14 1JB. UK. Offices in UK, EU, Dubai

Representative