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should be taken not to specify these requirements too closely as uses change with time. The analytical scientist should also not try to envisage every potential application or the selection

Feature	Definition and/or test procedure and guidance for assesment	Importance	Reason	Score
<i>(b)</i> Availability and delivery of spares	Range of stock carried by, or quickly			

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(2) Burner–nebulizer assembly	Maximum score for acetylene, hydrogen and propane, air, nitrous oxide and appropriate burner heads. Minimum score for air–acetylene only.	VI		

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(5) Gas control unit								
(a) Pressure for stable operation	Score maximum for wide range consistent with safe working practice. Score zero if minimum acetylene pressure required to operate the flame is above 9 lb in ⁻² .	VI	Wide range enables best fuel-oxidant usage under conditions that minimise fluctuations in flow rates. The operation of acetylene flames at over 9 lb in ⁻² is generally not permitted in the UK.	PS WF ST				
(b) Safety features	Score maximum for 'Auto Shut Down', 'Pressure Drop Sensors', 'Gas Cylinder Valve Heaters' and correct burner type and location sensor.	VI	Safe operation of instrument.	PS WF ST				
(c) Manual/electronic	Electronic preferred in general.	I	Electronic control provides an extra element of safety and convenience for most situations, but may not be compatible with hydrogen fuel, as gases are shut off in the wrong order and many flame sensors fail to detect hydrogen flames.	PS WF ST				
(d) Number of fuel and support gas inlets	Score maximum for maximum number.	I	Enables instrument to be conveniently operated with desired fuel-oxidant combinations.	PS WF ST				
(e) Flow-rate indication	Score maximum for digital indication and wide range of flow for each gas line.	I	Ease of reproducing conditions.	PS WF ST				
(f) Auto-ignitors	Score according to preference.	NVI	Convenience of operation.	PS WF ST				
(6) Detectors	Score maximum for the availability of a photomultiplier tube which meets most requirements, and for the ease of interchange.	I	A suitable photomultiplier is required to cover the wavelength range of the elements of interest. Where one photomultiplier cannot give sufficient spectral range, ease of interchange is important, as is the ability of the replacement to attain working stability rapidly.	PS WF ST				
(7) EHT Supply								
(a) Voltage range	Score maximum for wide range and digital read-out applied voltage.	I	Reproducible instrument operation and minimum detector noise.	PS WF ST				
(b) Means of adjustment	Adjustment by calibrated manual control preferred. Automatic continuous adjustment of EHT is undesirable.	I	Consistent signal to noise ratio can only be achieved by operation at constant EHT, which should not be changed during the analysis.	PS WF ST				
(8) Amplifier								
(a) Type	Synchronously demodulated 'lock-in' normal; score maximum number for above type with largest number of attenuation ranges.	VI	Operational versatility and removal of unwanted dc signals. Note: Some instruments use digital data processing and the known timing of the readings permits the signal to be separated from the noise and the signal to be deconvoluted from the background without the need for a lock-in amplifier.	PS WF ST				
(b) Time constants	Score maximum for widest available range and number.	I	Minimizing noise, consistent with signal type and efficient sample utilization.	PS WF ST				

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(c) Integration	Importance of ability to change integration times is dependent on the particular instrument.	I	If the signal contains a high proportion of (white) noise, integration will improve the	

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