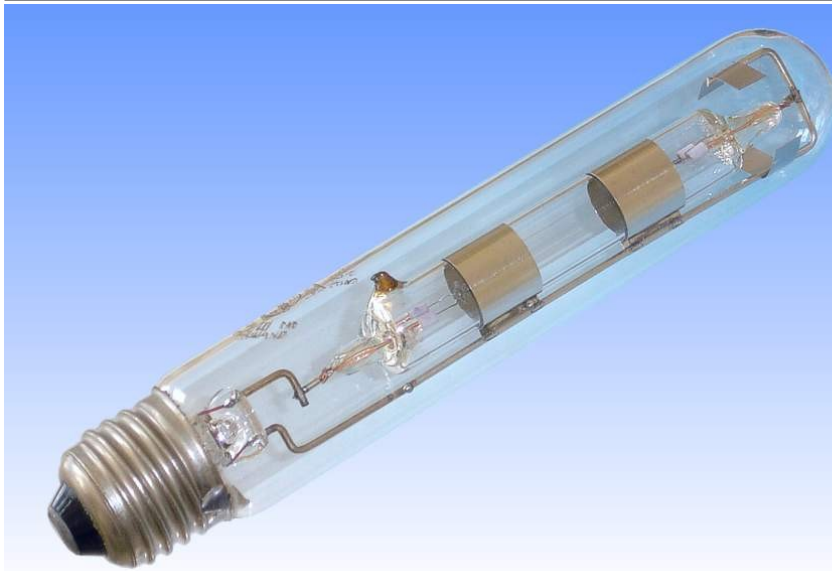




Spectral Lamp - Alkali Metal - Sodium

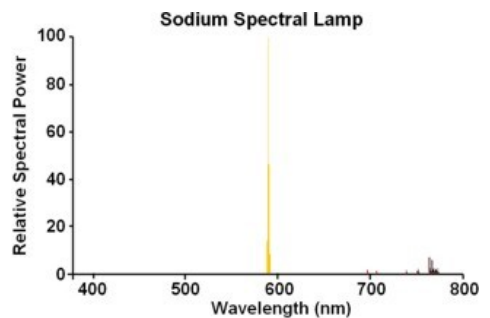


Spectral lamps find a home in laboratory applications where they are commonly employed as stable, high quality sources of discrete spectral lines. Atomic spectra were originally produced by creating an arc between electrodes fabricated of the metal to be studied, or by sprinkling a powdered salt into a gas flame. Both methods produce somewhat unstable results and require constant attention. In the 1940s a range of electric discharge lamps was developed to supersede these crude methods, and delivered much more stable results by virtue of the high purity and constant output.

Three lamps make up the group containing Alkali Metals in the Philips series. These are Sodium, Rubidium and Caesium, although production of the latter was discontinued in the 1970s due to lack of demand. Caesium radiates so many spectral lines that it is of little value owing to the difficulty of identifying them individually in all but the most professional equipment. The construction of the discharge tubes is based upon the design of Low Pressure Sodium lamps for general illumination purposes. The glass is of the 2-ply borate lined type which was developed for its excellent resistance to hot sodium vapour - a property it also exhibits against the other alkali metals. Sometimes a small dimple is included near the centre of the tube to act as a cold spot, and reduce the tendency for the metal to migrate.

The electrode assemblies in this family are also based on low pressure sodium lamps. A triple coil of black tungsten wire is wound into a beehive shaped hollow cathode, the spaces between the coils being filled with an emissive compound of barium, strontium and calcium oxides. The outer envelopes are evacuated for thermal insulation.

Manufacturer:	Philips Lighting - Item No. 93122E	
Lamp Power:	12.5 Watts	
Lamp Current:	0.9 Amps	
Lamp Voltage:	15 Volts	400V Ignition
Cap:	E27s/27	Ni plated brass
Bulb Finish:	Clear	Soda-lime
Bulb Type:	T-32	
Overall Length:	183 mm	
Light Centre Length:	110 mm	
Electrodes:	Beehive coil of black tungsten with BCT emitter	
Inner / Outer Atmosphere:	Inner: Sodium, Argon	Outer: Vacuum
Luminous Flux:	18 lumens	
Luminous Efficacy:	0.1 lm/W	
Colour Temperature & CRI:	CCT: 1875K	CRI: Ra -32
Chromaticity Co-ordinates:	CCx: 0.537	CCy: 0.406
Burning Position:	Vertical cap down	
Rated Life:	Not published	
Warm Up / Re-strike Time:	Instantaneous	Instantaneous
Factory:	Turnhout, Belgium	
Date of Manufacture:	September 1986	
Original / Present Value:	Unknown	



References: 1) Light Sources for Line Spectra, *W. Elenbaas and J. Riemens*, Philips Technical Review April 1950, V.11 No.10, pp. 299-302.
2) Spectrophotometric measurement of lamp.