Westinghouse

WL-40062 EDL

The Se EDL is capable of producing up to 10 times more light output than the hollow cathode device, but, similar to the hollow cathode source, the absorption sensitivity of the line decreases as the intensity is increased because of self absorption and line broadening.

The optimum operating power is such that the 1960 A° line intensity is about 5 times that produced by the hollow cathode source. This will occur at about 7 watts of power; however, this power value is approximate and will vary slightly from power supply to power supply, the mode of operation, and during the life of the cavity. The rule to follow is to set the power at the lowest level at which acceptable signal-to-noise ratio is attained in the particular atomic absorption instrument in use.

In the CW and CHOP modes this can be best accomplished by operating the cavity initially at the stated setting on the label. If the intensity is too low, the power setting should be increased in increments of 0.5 watt until a suitable intensity is obtained without oscillation or excessive loss of sensitivity.

If the lamp oscillates, or if the absorption sensitivity is poor, the power setting should be reduced in increments of 0.5 watts until satisfactory operation is achieved. Once the optimum operational setting is found for each new cavity, subsequent runs should be repeatable.

FOR OPERATING IN THE HCA MODE, SEE REVERSE SIDE FOR OPERATING PROCEDURE.

For more rapid warm-up of the EDL light source, it is recommended to use the following cold start procedure;

1. Run EDL at 2 watts above label value for CW or chopped modes for 5 minutes. USE CHOPPED OR CW OPERATING MODES ONLY.
2. Reset power to final operating power of 7 watts.

CAUTION: THE SURFACE OF THE CAVITY MAY REACH UP TO 80°C DURING OPERATION. DO NOT TOUCH WITH BARE HANDS UNTIL COOL.

APPLICATION NOTE - HCA (PULSE) OPERATION OF EDL SYSTEMS

This EDL power supply and cavity has the capability of being operated in a wide variety of modes extending from continuous to pulse operation at various duty cycles and repetition rates. Because of the wide operational variations to which the cavity may be subjected, the power setting value stated on the cavity label is the approximate power for proper continuous (CW) and 50% duty cycle (chopped) operations.

Extra precaution should be observed when operating the cavity in AAS instruments with 20-30% duty cycle circuitry because the desired operating power normally decreases at the lower duty cycles. For these instruments, the cavity may be found to operate from 0 to 30% below the CW value printed on the label. In this mode of operation, once the EDL device reaches the optimum operating range, overdriving the cavity with excessive power can cause it to enter into a region of instability (low frequency power changes). If this should occur, turn the power down to "zero" for several minutes and reset about 1/2 - 1 watt lower. If instability continues, repeat above procedure until stable condition is reached.

As in all spectral line sources, line broadening will occur as the power setting (light intensity) is increased. It is recommended that the cavity be operated at the minimum power level at which the desired signal to noise level is attained in the particular AAS instrumentation used.

Once the optimum operational setting is found for each new cavity, subsequent runs should be repeatable.

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