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XENON LAMPS FOR CD SPECTROPOLARIMETERS

Jasco CD spectropolarimeters are using 150 or 450W Xe lamps as from following list:

450W (Osram XBO-450W/4) J-40, J-500, J-600, J-720
150W (Osram XBO-150W/4) J-710, J-715*, J-810*
** these models were/are available also in the rare 450W variant*
Spare lamps can be obtained directly from Osram, since however the /4 types are rather rare and not usually stocked by them, very often your local Jasco representative is the easiest source.

How these lamps age? When to exchange them?

Our experience indicates that 450 and 150W lamps have somehow a different behaviour.

Two phenomena are involved in the ageing process:

1. the tip of the cathode erodes and luminance geometry may change, after severe erosion arc migration effects are also possible. First factor decreases "energy" available in the system, second one may decrease stability.
2. Tungsten from the electrodes evaporates and deposits on the inside of the quartz bulb, reducing radiated output, particularly in the UV region.

In our experience 450W lamps suffer far more from 2, while 150W are due for replacement mainly for reason 1. So the overall practical lifetime of the 150W lamps is in average a bit longer, particularly if far UV is the main application.
In any case it's recommended to replace the lamp after 1000 hours of operation, while explosions or implosions are very rare and usually may take place at much higher operating hours, it's not the case to risk.
The mechanical timer on the power supplier is present on all models (J-810 has counter via software …), apart from the J-710, which has no timer at all. We would strongly recommend the addition of a timer (they are cheap!) also on this model, if interested pls ask your Jasco representative.
Unfortunately on all the models there is no timer showing the total operating hours of the system. It's as if your car had only the trip meter! Here too however timers which cannot be reset to zero are easily commercially available.
In a any case users should better keep a log-book listing lamp exchanges as well as any other maintenance applied.

Further practical suggestions:

1. keep always a spare lamp in your stock
2. before each lamp replacement pls note down H.T. applied on PM tube at specific parameters (for example 200 and 300 nm with 2 nm bandpass). Keep a record of same values after fitting the new lamp..
   (these records are very important to monitor the status of the mirrors of your system!)
3. each time you exchange a lamp have a good look at its holders. 150W lamps have cathode and anode adapters, the first must be clean with no trace of overheating, the spring in the anode adapter must be alive …
   450W electrode holders of J-720 and J-600 are usually trouble free, while cathode heat dissipater of J-500/J-40 is well known for its long-term fragility…. Nothing serious if proper maintenance is applied.

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