

## "everclear" lamp generation

Every user of uv-curing lamps knows the problem, particularly in label printing industries: although the lamp works well, there are times when the edges do not completely dry, especially when operating the lamp at full power. The reason for this is the erosion of the electrodes, which results in the well-known blackening around the electrode area.

This blackening can be about 2 to 3 cm wide on each side; therefore the maximum possible printing width gradually becomes smaller. Due to this the lamps have to be changed earlier even though the UV-power in the middle is still clearly more than 75 %. The halogen cycle in the "everclear" Lamps takes remedial action as it prevents the edge from blackening. This can increase lamp life up to approximately 4000 hours.

### How does it work?

To explain in simplified terms the answer is in the special halogen molecules located in the discharge. They combine with the tungsten particles that evaporate from the electrodes. This connection continues until they collide with the electrode. When this happens the connection breaks. The tungsten particle connects back on to the electrode and the halogen molecule continues moving through the lamp in order to join with the next tungsten particle.

Of course, this halogen cycle works only when the lamp is at its operating temperature, however this is normally the case when the parameters in the UV-plant are correctly adjusted. The process of the vaporized tungsten particles finding their way back to the electrode results in a lamp nearly free of end blackening and increases the lamp life up to 4000 hours and longer.

There are many advantages for the user:

- Longer useful lifetime across the whole working width.
- Lower radiation fall-off in the effective curing UV-range: less than 25 % after 3000 h to 4000 h instead of previous fall-off after 2000 h.
- Lower annual costs for replacement lamps.
- Less time taken for changing the lamps

This technology of halogen cycle is not new. It has been used successfully for many years for electric light bulbs, specifically in the lamps used for headlights. The previous light bulbs became darker and darker because of the evaporated material from the filament and the car lights became dimmer, although the lights still worked, they were not bright enough. The halogen cycle ensures that the lamp stays clear, because nearly all the vaporized material is transported back to the filament. This process continues until the filament breaks and the lamp will not light at all. Here the advantages are also a substantial longer useful lifetime and a clearly reduced lighting fall off.

This technology has now been successfully transported to the manufacturing of our UV-curing lamps. The benefits of this technology can therefore now benefit our customers.

