ENSYSTEX™
LEADING INNOVATION IN PEST MANAGEMENT

Ensystex Australasia Pty Ltd
ABN: 53 102 221 965
PO Box 6824
SILVERWATER NSW 2128
Unit 3 The Junction Estate
4 – 6 Junction Street
AUBURN NSW 2144
Ph: 13 35 36
Fax: (02) 9647 2189
Email : info@ensystex.com.au

UV-A Light Output

With the use of UV-A Testers, there is sometimes arising a misunderstanding of the concepts of lamp performance.

The main benefit of the UV-A Tester is to confirm that the lamp is performing and delivering at least the minimum required output threshold of 5 mW/ cm^2. It also allows checking of other lamps to see if they are performing and delivering more than the minimum output threshold.

Please recognise though that the initial output value is not so important, it is the value, at the end of its lifespan that is more important. At that time, we still need a minimum threshold value, which widely exceeds the background UV-A level present in any room. Hence the above target of 5 mW/ cm^2.

Lamp behaviour

Below are the typical data you will find measuring Philips Long-life lamps during the various lamp phases and comments on this.

Phase	***Hrs***	***Lamp output behaviour***	***Typical UV-A output (mw/cm^2)***
Start-up of the lamp	0 - 200	At this initial stage the lamp is relatively unstable. The fluorescent powder is not converting / processing the incoming light consistently to UV-A light and the mercury inside the lamp has not spread out over the entire lamp, (transport, ambient temperature, optimising of the exciters in the fluorescent powder are at the root of this UV-A output behaviour, where we may witness / measure high UV-A output fluctuations)	15 – 10 mw/cm^2
Mature stage	200 – 17,500 hrs	The processes have stabilised and the lamp has stabilised. From now on the lamp will gradually age over time (almost a linear depreciation over time can be measured)	10 – 8 mw/cm^2
End of lamp life stage	After 17.500 hours	Although the lamp is still able to generate a good amount of UV light, the depreciation will start accelerating over time AND there is a chance that the lamp will physically malfunction (i.e. the lamp's electrode may break.)	Below 8 mw/cm^2

The guarantee we provide with the Philips Long-life lamp is not so much a guarantee on the initial output value, but based on the end of lamp life value; i.e. that the lamp will perform for two years.

Calculating UV-A output on the Philips Long-life lamp

We guarantee that a Long-life lamp has 3.86 w of UV-A light at the beginning of the lamp's life .

The amount of UV-A light coming from a new lamp can be found by measuring the UV-A output value found (in mw/cm^2) and multiplying this by the cm^2 surface of the lamp.

A 15 watt UV-A lamp has a lamp surface of: Length (cm) x diameter (cm) x π (3.1416):

L = 43.74 cm

D = 2.585

π = 3.1416

The total lamp surface is therefore: 355.03 cm^2

The minimum UV-A output which should be found at the beginning of the lamp's life should therefore be 3,860 mw / 355.03 cm^2 = 10.8 mw/cm^2.

The fact that one measures higher values is due to the fact that the lamp process is unstable during the first 200 hours; after 200 hours these values will have lowered.

Monday, 26 June 2017