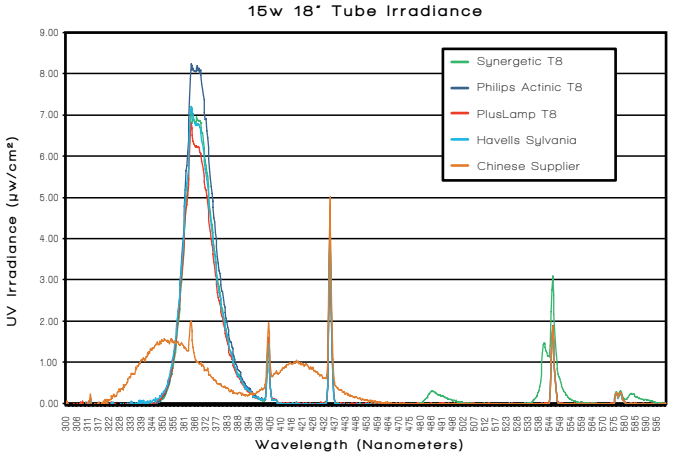
We understand that our customers work within a variety of environments and need a choice of bulbs which will offer solutions to the wide range of issues faced. We have developed a comprehensive range incorporating the leading brands and technologies to ensure that it's easy to find the right bulb every time.

HOW OFTEN SHOULD UV BULBS BE CHANGED AND WHY?

We recommend that UV bulbs are changed every 12 months to ensure maximum efficacy.

The levels of UV produced by fluorescent bulbs deteriorates rapidly throughout the life of the bulb. Whilst the bulb will continue to glow blue or green indefinitely, after approximately 8,000 hours the amount of useful UV (which humans cannot see) drops to a level where it is no longer attractive to flying insects. As a result, UV bulbs must be replaced annually to ensure they remain effective in producing useful levels of UV. This replacement cycle is typically undertaken just before the peak insect season, (March/April in North America) to ensure the flylight is producing the maximum amount of UV throughout the critical insect season.



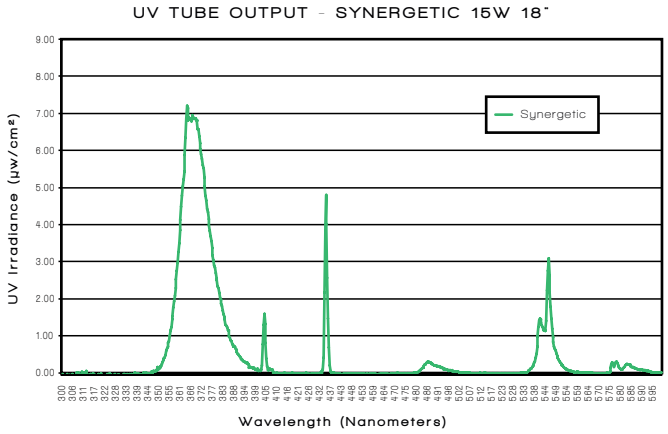
SYNERGETIC®

Easily recognized by their glowing green light, Synergetic® bulbs have been developed to attract a much wider range of flying insects than traditional blue UV bulbs.

Based upon a unique phosphor mix, patented technology ensures that a broader 'two peak' wavelength is maintained (368nm and 540nm) attracting a wide range of insects including stored product moths, whilst attracting the common housefly as effectively as traditional blue UV bulbs, giving you the best of both UV technologies.

Extensive testing has been carried out over many years by independent entomologists and test laboratories, showing the benefits of green light in combination with UV.

A wide diversity of insects were shown to be more attracted to Synergetic® light, including greenhouse whiteflies[1], silverleaf whiteflies, thrips, leafhoppers[2], Indian meal moths, Mediterranean flour moths[3], tropical warehouse moths, warehouse moths[4], plus many more!



DID YOU KNOW?

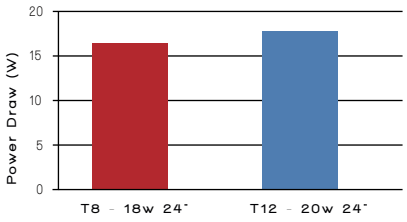
Many insect pests of public health, stored product and agricultural importance have evolved visual pigments which allow them to perceive green light.[5]

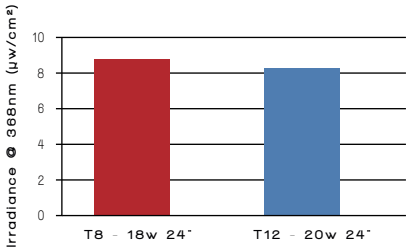
Recordings of electroretinograms in housefly eyes found peaks in both UV (340-365nm) and blue green (450-550nm)[6] with similar sensitivities found in other Diptera eg. Calliphora vicina Meig[7], Haematobia irritans L., Musca autumnalis De Geer, Stamoxys calcitrans L.[8], Glossina mortisans mortisans Westw.[9], and Fannia canicularis L.[10], as well as the mosquito Aedes aegypti (323-345nm and 523nm)[11]. Several Tabanid species were also found to have a peak activity of 400-600nm[12].

1 Coombe, P.E. 1981. Wavelength specific behavior of the *whitefly Trialeurodes vaporariorum* (Homoptera: Aleyrodidae) J. Comp. Physiol. 144:83-90 **2** Chu, C.C., Printer, P.J., Henneberry, T.J., Umeda, K., Natwick, E.T., Wei, Y., Reddy V.R & Shrepatis, M. 2000. Use of CC traps with different trap base colours for *silverleaf whiteflies* (*Homoptera: Aleyrodidae*), *thrips* (*Thysanoptera: Thripidae*) and *leafhoppers* (*Homoptera: Cicadellidae*). J. Econ. Entomol. 93:1329-1337. **3** Soderstrom, L., 1970. Effectiveness of green electroluminescent bulbs for attracting stored product insects. J. Econ. Entomol. 63: 726-731. **4** Rees, D.P., 1985. Review of the response of stored product insects to light of various wavelengths, with particular reference to the design and use of light traps for population monitoring. Trp.Sci. 25: 197-21. **5** Small, G., 2009. Review of the attraction of insects to green light. I2L Research **6** Mazokhin-Porshniakov, G.A., 1960. Colourometric study of the properties of colour vision of insects as exemplified by the *house fly*. Biofizika 5 (3):295-303 **7** Burkhardt, D., 1962. Spectural sensitivity and other response characteristics of single visual cells in the *arthropod* eye. Symp. Soc. Exp. Biol.

PHILIPS

Philips Lighting is a leading provider of lighting solutions for professional applications. The range of Philips UV bulbs is dedicated to providing innovative, energy-efficient solutions and applications for lighting, based on a thorough understanding of customer needs. Philips bulbs are available in a range of sizes and shatterproof options.





Philips bulbs are available in a comprehensive range of models, including shatterproof versions. The range also features the innovative new T8 18W and 36W bulb, offering a contemporary low power, increased efficiency replacement for 20W and 40W T12 bulbs.

DID YOU KNOW?

Some stored-product beetles respond better to blue UV light, including the cigarette beetle, the merchant grain beetle, the rice weevil and the red flour beetle.

PLUS-LAMP™

Offering superb value, the PlusLamp™ range offers users a wide choice of 368nm blue UV bulbs in both standard or shatterproof options.

Testing showed that the PlusLamp™ 368nm range experienced a lower rate of deterioration than many leading brand UV bulbs.

SHATTERPROOFING

Shatterproof bulbs provide peace of mind in sensitive areas by retaining glass shards if the bulb is broken. All our ranges can be shatterproofed, ensuring that you can choose your ideal bulb to help you protect even the most sensitive areas, including food preparation and assembly areas. Shatterproof bulbs MUST be installed in areas operating a 'glass free policy'.

The Fluorinated Polymer (FEP) material used for all our sleeving is designed specifically for optical transmission and allows 97% of effective UV light to pass through the coating. As a result, the maximum possible amount of useful UV irradiance passes through the sleeving to effectively attract insects. With only 3% of the irradiance being absorbed into the material, the structural integrity of the sleeving is maintained for the full 12 month life of the bulb, preventing discoloring and ensuring all glass shards are retained in the event of a breakage.

16:86-109. **8** Agee, H.R. & Patterson, R.S., 1983. Spectral sensitivity of stable, face and horn *flies* and behavioural responses of stable *flies* to visual traps (Diptera: Muscidae). Environ. Entomol. 12 (6): 1823-1828. **9** Green, C.H. & Cosens, D. 1983. Spectral responses of the *tsetse fly, Glossina morsitans morsitans*. J. Insect Physiol. 29 (10): 795-800 **10** Bellingham, J., & Anderson, M., 1993. Variations and sexual differences in the spectral sensitivity of the compound eye of the *housefly Musca* domestica (L.) and the lesser *housefly Fannia canicularis* (L.). Proceedings of the International Conference on Insect Pests in the Urban Environment 1:480. Cambridge. **11** Muir, L.E., Throne, M.L. & Kay, B.H. 1992. *Aedea aegypti* (*Dipthera: Culicidae*) vision: Response to stimuli from the optical environment. J. Med. Entomol. 29(3):445-50. **12** Smith, W.C., 1986. The retina of the *Tananidae* (*Dipthera*) compound eye: an ultrastructural and electrophysical study. M.S. thesis, University of Florida, Gainesville, USA. 406 pp.