JKL COMPONENTS CORPORATION

TECH BRIEF

UV-C ULTRAVIOLET CCFLS

Ultraviolet lamps in the 253.7nm (UV-C) range are often called germicidal lamps because of the ability of short wavelength UV-C radiation to kill various microorganisms with the proper dosage of energy. CCFL UV-C lamps have no phospher on the inside of the glass envelope. This envelope is typically made of special glasses which limit the attenuation of the 253.7nm energy from the mercury arc. One of the best materials to use for good transmission at 253.7nm is quartz glass; the JKL BF1190-UVC uses a quartz envelope.

Some ozone is produced by the transmission of 185nm radiation through the lamps quartz glass envelope, acting upon the molecular oxygen in the air. The primary absorption spectrum of oxygen is from approximately 120nm to 240nm; this is the energy range that produces ozone. For applications requiring reduced levels of ozone, the JKL BF8-UVC series of lamps use a hard glass, which attenuates energy below the 253.7nm range.

Apparatuses requiring lenses or windows should be made from quartz glass (fused silica), in order not to attenuate the 253.7nm radiation. When reflectors are required, one of the best materials to use is aluminum. Aluminum with an etched surface or as a foil, typically has a reflectance in the 70-80% range for 253.7nm wavelength radiation.

UV-C radiation is dangerous to the eye, protection should be used at all times when working with these lamps. It is recommended that the UV-C lamps be shielded with an adequate material to absorb the 253.7nm energy. Exposure of the eye to UV-C radiation can cause several effects such as photokeratitis (inflammation of the cornea) and the formation of cataracts (fogging of the cornea). In addition to the direct exposure to the lamp output, caution should be taken not to be exposed by reflected UV-C.

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