

Frequently Asked Questions

Halogen Lamp Ultraviolet Output

Do tungsten halogen lamps emit ultraviolet radiation?

Tungsten halogen incandescent lamps emit a small amount of ultraviolet energy (UV). There have been studies that suggest a possible small risk associated with exposure to this UV. For example, a letter in the 16 April 1992 issue of *Nature* (DeFlora & D'Agnostini, 356:569) reported an experiment in which mice that were exposed for long periods of time close to halogen lamps at high light levels developed skin cancers. The article noted that these results are not easily extrapolated to humans and that mice were exposed to greater doses of light than humans normally receive from halogen lamps. Fortunately, such exposure cannot occur when tungsten halogen lamps are used properly.

The small bulb of the tungsten halogen lamp operates at a very high temperature, often several hundred degrees Celsius. If this bulb were to be shattered for any reason while operating, the hot fragments could cause burns. Proper use of this lamp requires it to be operated within light fixtures that provide the necessary enclosure to protect people and surroundings. Quoting from the package instructions, "(t)his lamp operates with an internal pressure greater than atmospheric pressure and may, in rare cases, shatter. Precautions must be taken to ensure that lamp fragments cannot cause damage to persons, animals, or property. Therefore, only luminaires fitted with a means of preventing ejection of such fragments must be used." Properly designed light fixtures will have a glass cover that strongly attenuates the shorter wavelength UV as well as containing possible bulb fragments. If this cover is missing, the light fixture should not be used.

There is a range of SYLVANIA tungsten halogen lamps that do not have to be operated in enclosed fixtures. These lamps are made with a second outer glass bulb that, in some cases, also serves as a reflector. The glass of the outer bulb significantly absorbs short wavelength UV and can contain fragments if the inner high temperature bulb shatters. Examples of such lamps would be the SYLVANIA CAPSYLITE[®] A-Line (Midbreak) and PAR lamp types.

Articles discussing the possible hazard of UV from halogen lamps have stated that suitable covers should be used with halogen lamps. This is correct; if the cover is not part of the lamp, then it should be part of the light fixture. However, some of these articles have gone on to say that such covers should be installed on light fixtures that do not have covers. In such cases, we recommend that the light fixture manufacturer be consulted for advice before adding such a cover. Improper installation of a cover might cause the light fixture temperature to rise above safe values. Also, the enclosing material must be able to safely contain hot bulb fragments if the bulb is broken and must not burn if contacted by such hot fragments.

Above all, remember that short wavelength UV exposure cannot occur when tungsten halogen incandescent lamps are used properly.