

## Overview of UVC + Sterilization

UVC light in the wavelengths of 207-222 has been found to efficiently kill bacteria and viruses without causing damage to human cells. At these wavelengths, penetration of UV light is harmlessly absorbed by the outer layer of dead skin, whereas longer-wavelength UV light outside of this range can cause severe tissue damage.

|            |  |  |         |  |
|------------|--|--|---------|--|
| Gamma Rays | X-Rays                                     | Ultraviolet (UV)                                   | Visible | Infrared                                   |
| Vacuum UV  | Short Wave UV(UV-C)- causes corneal damage | Middlewave UV(UV-B) - causes sunburn + skin cancer |         | Longwave UV(UV-A)- causes suntan + sunburn |

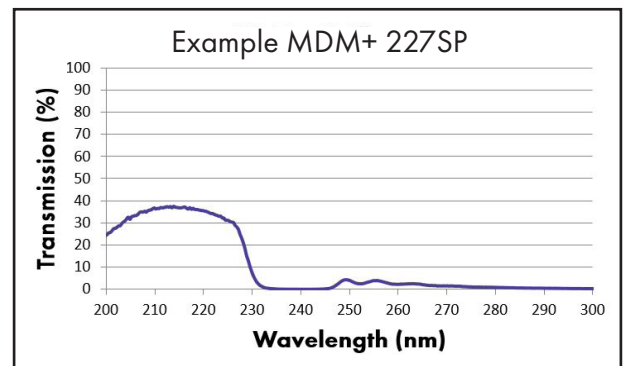
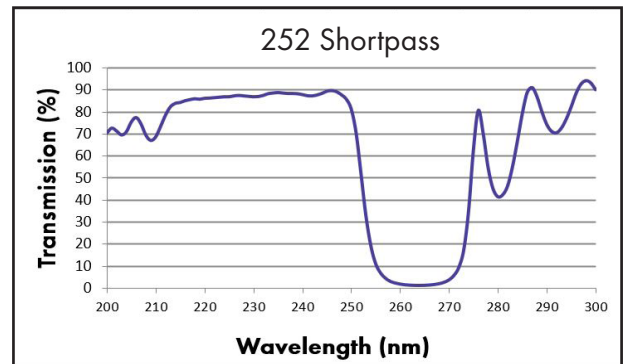
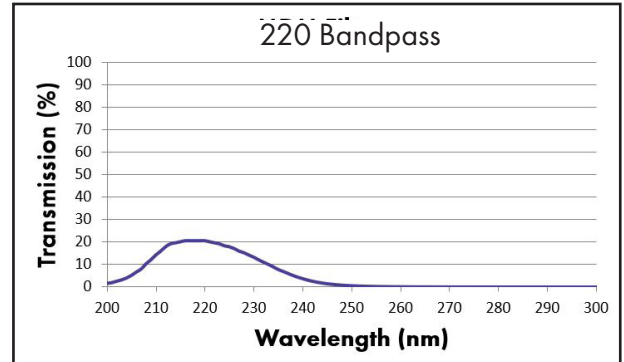
Radiometry is used to assess lamp output and dosage for sterilization.

## Challenges in UVC Filter Design

- UV light sources include excimer lamps, xenon lamps, mercury vapor lamps, deuterium arc lamps and UV LEDs. Many UV lamps emit longer wavelengths that are damaging to human tissue (245-390nm) and need to be blocked.
- Most materials do not transmit well due to absorption and scatter. Special Coating materials are required.
- Work in the UVC region should fall within the MPE limits of the US Navy UV radiation Guidelines (1992).

Omega Optical can help you in every step of designing, prototyping and high-volume production. Contact us for custom designs and large quantities!

## Omega Filters for UVC



| Filter Type                 | Size (mm) * |
|-----------------------------|-------------|
| 220BP30                     | 50x50       |
| 252 Shortpass               | 50x50       |
| Example MDM & Dielectric SP | 50x50       |

\*Maximum size is 100 x 100 mm

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