



How to Select Laser Safety Eyewear

Lasermate Group, Inc. provides a vast range of laser safety glasses, goggles and eyewear. For step-by-step process on how to select protective eyewear, please see below tutorial guideline.

Step 1: Filter

Determine the Optical Density (OD) for wavelength and power of the laser.

- Consult the laser manufacturer or refer to laser manual for eyewear requirements.
- Consider the conditions and needs of the use (i.e. eye protection, visible alignment, flashlamp/IPL).
- Confirm that the filter will reduce possible energy exposure to below the Maximum Permissible Exposure (MPE).

Optical Density (OD) is a measure of the attenuation of energy passing through a filter, where the formulation is as follows: $OD = \log_{10}(1/T)$ or $T = 10^{-OD}$ where OD is optical density and T is the transmittance. The higher the OD value, the higher the attenuation and the greater the protection level.

OD to % Transmittance Conversions

OD	Transmittance	OD	Transmittance
0.0	100%	5.0	0.001%
1.0	10%	6.0	0.0001%
2.0	1%	7.0	0.00001%
3.0	0.1%	8.0	0.000001%
4.0	0.01%	9.0	0.0000001%

Consider the Visible Light Transmittance (VLT) of the Filter.

- Consider the working environment.

Visible Light Transmittance (VLT) is the percentage of visible light transmitted through a filter, calculated against the spectral sensitivity of the eye to daylight. Typically the higher the VLT, the lighter the color of the filter. High VLT is most suitable for low-light environments. VLT values below 20% is suggested to be used in well-lit working environments.

Other Terms:

L-Rating in EN207 standard is used as the damage threshold of the eyewear material and requires actual laser stability testing for at least 10 seconds for CW mode of 100 pulses for pulsed modes. L-Rating consists of three components: a wavelength range, a laser mode designation and a scale number. The wavelength range engraved on the laser safety glasses or goggles is given in nanometers and is significant since the level of protection provided by the laser safety eyewear is wavelength dependent. Please refer to European standard EN207 for detailed information.

- Filters can be selected by Wavelength or by Application.

Step 2: Frame

Select Frame style.

- Consider whether users require a frame option that fits over prescription glasses or an adjustable frame to accommodate a variety of faces.
- Ensure that the selected frame meets individual needs and is face-forming and well-fitting with no gaps.