

APPLICATIONS—Continued

Operation	Hazards	Recommended protectors: Bold type numbers signify preferred protection
Molten metals .....	Heat, glare, sparks, splash .....	7, 8, (10 in combination with 4, 5, 6, in tinted lenses).
Spot welding .....	Flying particles, sparks .....	1, 3, 4, 5, 6, 10.

(6) Protectors shall meet the following minimum requirements:

(i) They shall provide adequate protection against the particular hazards for which they are designed.

(ii) They shall be reasonably comfortable when worn under the designated conditions.

(iii) They shall fit snugly and shall not unduly interfere with the movements of the wearer.

(iv) They shall be durable.

(v) They shall be capable of being disinfected.

(vi) They shall be easily cleanable.

(7) Every protector shall be distinctly marked to facilitate identification only of the manufacturer.

(8) When limitations or precautions are indicated by the manufacturer, they shall be transmitted to the user and care taken to see that such limitations and precautions are strictly observed.

(b) *Protection against radiant energy—*  
 (1) *Selection of shade numbers for welding filter.* Table E-2 shall be used as a guide for the selection of the proper shade numbers of filter lenses or plates used in welding. Shades more dense than those listed may be used to suit the individual's needs.

TABLE E-2—FILTER LENS SHADE NUMBERS FOR PROTECTION AGAINST RADIANT ENERGY

Welding operation	Shade number
Shielded metal-arc welding 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes .....	10
Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes .....	11
Gas-shielded arc welding (ferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes .....	12
Shielded metal-arc welding 3/16-, 7/32-, 1/4-inch diameter electrodes .....	12
5/16-, 3/8-inch diameter electrodes .....	14
Atomic hydrogen welding .....	10-14
Carbon-arc welding .....	14
Soldering .....	2
Torch brazing .....	3 or 4
Light cutting, up to 1 inch .....	3 or 4
Medium cutting, 1 inch to 6 inches .....	4 or 5
Heavy cutting, over 6 inches .....	5 or 6
Gas welding (light), up to 1/8-inch .....	4 or 5

TABLE E-2—FILTER LENS SHADE NUMBERS FOR PROTECTION AGAINST RADIANT ENERGY—Continued

Welding operation	Shade number
Gas welding (medium), 1/8-inch to 1/2-inch .....	5 or 6
Gas welding (heavy), over 1/2-inch .....	6 or 8

(2) *Laser protection.* (i) Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. Table E-3 lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from 5 through 8.

TABLE E-3—SELECTING LASER SAFETY GLASS

Intensity, CW maximum power density (watts/cm <sup>2</sup> )	Attenuation	
	Optical density (O.D.)	Attenuation factor
10 <sup>-2</sup>	5	10 <sup>5</sup>
10 <sup>-1</sup>	6	10 <sup>6</sup>
1.0	7	10 <sup>7</sup>
10.0	8	10 <sup>8</sup>

Output levels falling between lines in this table shall require the higher optical density.

(ii) All protective goggles shall bear a label identifying the following data:

(a) The laser wavelengths for which use is intended;

(b) The optical density of those wavelengths;

(c) The visible light transmission.

[44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, as amended at 58 FR 35160, June 30, 1993]

§ 1926.103 Respiratory protection.

NOTE: The requirements applicable to construction work under this section are identical to those set forth at 29 CFR 1910.134 of this chapter.

[63 FR 1297; Jan. 8, 1998]