U. S. Dept. of Commerce, O.T.S.
Commodity Standards Division

May 13, 1958

GROUND-AND-POLISHED LENSES FOR SUN GLASSES

(Second Edition)

COMMERCIAL STANDARD CS78-40

On June 16, 1939, at the instance of the Sun Glass Institute, Inc., a general conference, to which all interests were invited, adopted a recommended commercial standard for ground-and-polished lenses for sun glasses, which was subsequently accepted by those concerned and published as Commercial Standard CS78-39. Requirements for lenses of laminated construction, as recommended by the Sun Glass Institute, Inc., and endorsed by the Standing Committee, have been accepted by the trade for promulgation by the U. S. Department of Commerce, through the National Bureau of Standards, and are incorporated in the revised standard as shown herein.

The standard is effective for new production from December 14, 1940.

PURPOSE

1. The purpose of this commercial standard is to provide a nationally recognized specification for ground-and polished [1/] sun-glass lenses to serve as an assurance and protection to purchasers, to promote fair competition between manufacturers, and to serve as a basis for certification of quality.

SCOPE

2. This commercial standard covers the accuracy of grinding and polishing as well as freedom from defects that impair serviceability of ground-and polished sun-glass lenses. The lenses covered by this commercial standard are eye-protective (not eye-corrective) devices. They are not a substitute for prescription lenses but may be worn therewith.

TYPES

3. This specification covers ground-and polished sun-glass lenses of curved and flat types made entirely of glass; and sun glass lenses composed of two glass components, both surfaces of which are ground-and-polished, and which components are joined together by one or more laminae.

GENERAL REQUIREMENTS

4. The finished lenses, and each of the glass components of laminated lenses, shall be made from glass of suitable quality, that is, glass free from striae, bubbles, seeds, or other defects visible to the unaided eye. Both

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1/ A ground-and-polished lens is one the optical surfaces of which are first completely removed with an abrasive to eliminate surface imperfections and to obtain a desired form (e.g. flat, spherical, etc.), and then polished so as to produce an optical finish which is free from visible surface defects, such as scratches, waves and grayness.

optical surfaces of the finished lenses, and of the glass components of laminated lenses, shall be ground, well polished, and free from visible surface defects, such as scratches, waves, and grayness.

5. Surfaces of the finished lenses shall be essentially parallel or of compensated curvatures; prismatic effect shall not exceed 1/8 prism diopter.

6. The finished lenses shall be essentially without focal power. There shall be not more than 1/16 diopter of power in any meridian and the difference in power between any two meridians shall not exceed 1/16 diopter.

7. The finished lenses shall transmit not more than 67 percent of the total visible light rays from a high-powered, gas-filled tungsten lamp operated at its rated voltage.

TESTING EQUIPMENT

8. The finished lenses shall be tested for prismatic effect and focal power by the following method or any other recognized optical method which provides measurements to the degree of accuracy required by these specifications:

Prismatic effect and focal power shall be judged, respectively, by displacement of image and by lack of clearness of image of an illuminated target viewed through the lens when placed in front of a suitably calibrated telescope equipped with cross hairs and having magnifying power not less than 12 and a free aperture not less than 1 inch. The target shall be located at a convenient distance (not less than 30 (thirty) feet), and shall consist of a cross centered within a circle. This design shall be formed of sharply delineated black lines upon a white card. The radius of the circle shall subtend an angle of 1/800th radian (1/8 prism diopter) when viewed from the position of the lens under test.

9. The visible radiation shall be determined photometrically by an observer having normal color vision, as determined by the Holmgren test for color vision, or with a physical photometer consisting of a thermopile (or other radiometer) and a luminosity solution having a spectraltransmission curve which coincides closely with the visibility curve of the average eye.

CERTIFICATION OF QUALITY

10. It is recommended that the following form of certification be used on labels, tags, invoices, etc.:

> "The _____ Company certifies these sun-glass lenses to comply with all requirements of Commercial Standard CS78-40 for Ground-and-Polished Lenses for Sun Glasses, as issued by the National Bureau of Standards."

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NOTE: This standard has not been issued in printed form.

USCOMM-DC-36442