

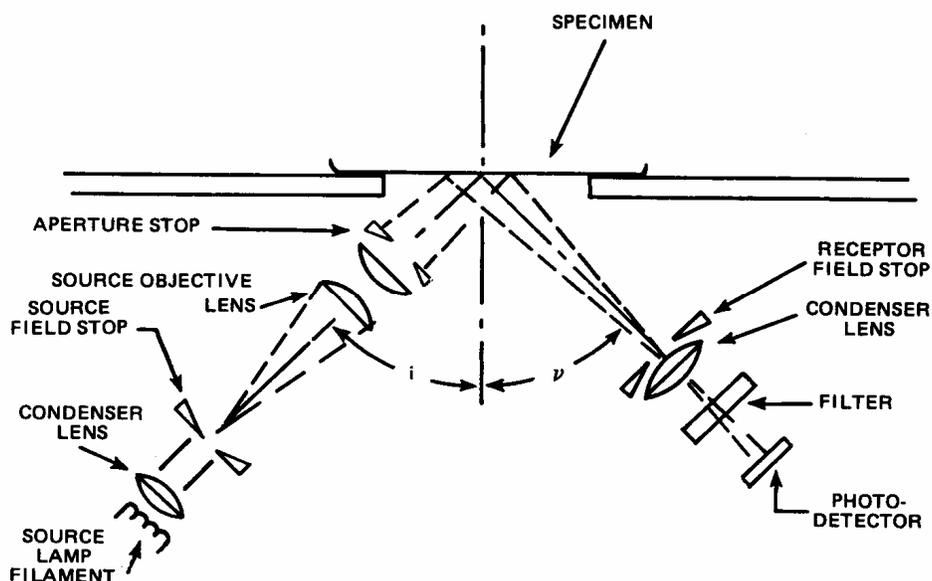
Gloss

Background

Gloss measurements quantify the amount of light reflected at the specular angle from an object's surface. The specular is the angle equal to but opposite the angle of incidence. This specular light is responsible for the highlights visible on shiny materials. Therefore, gloss measurements quantify how shiny an object is.

Glossmeters are configured so that the light generated is incident on the material at a particular angle relative to normal (the perpendicular). The detector is then placed at that same angle on the other side of normal so that only the light reflected at the specular angle is collected. Generally, a green filter corresponding to the CIE Luminosity Function is placed in front of the detector to enable the instrument to better simulate the human visual situation.

A glossmeter has a configuration similar to that shown below. The diagram is taken from Richard S. Hunter and Richard W. Harold, *The Measurement of Appearance*, New York: John Wiley and Sons, 1987, page 283.



ASTM Designation D523-89, “Standard Test Method for Specular Gloss,” specifies how gloss is to be measured. Generally, glossmeters provide light at one angle or a combination of three angles. The most common angles are 20°, 60°, and 85°. ASTM Designation D523 specifies that a 60° angle may be used for most materials. The test method recommends the use of a 20° angle when the 60° gloss value is greater than 70 (which would be a highly-reflective material). The use of an 85° angle is recommended when the 60° gloss value is less than 10 (which would be a matte material).

TAPPI gloss for paper is specified by TAPPI T480 and is measured at a 75° angle.

Conditions for Measurement

Instrumental: ProGloss II 60° glossmeter. ProGloss II 3-angle glossmeters (20°, 60°, and 85°) are also available. For measuring TAPPI gloss, the D48-7 75° glossmeter or ProGloss II 75° glossmeter should be used.

Typical Applications

Many materials such as car parts, table tops, flooring, paints, and paper are measured to determine the amount of gloss present.

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