

29 JULY 1977

MILITARY SPECIFICATION SHEET

COATING, LOW REFLECTANCE, ORDINARY REQUIREMENTS FOR

The complete requirements for procuring the low reflectance coating described herein shall consist of this document and the latest issue of Specification MIL-F-48616.

This specification is approved for use by all Departments and Agencies of the Department of Defense.

Spectral reflectance requirements for low reflectance coatings are given in Table I. Maximum reflectance values for each surface are tabulated for ranges of substrate index of refraction and for several wavelength ranges.

TABLE I

Low Reflectance Coatings - Maximum Percent Reflectance* per Surface

Index of Refraction of Substrate	Wavelength Ratio λ_2/λ_1	Reflectance	Dash No.
1.30 to 1.75	1.0	0.3	1
1.30 to 1.75	1.0 to 1.2	0.4	2
1.30 to 1.75	1.2 to 1.5	0.6	3
1.30 to 1.75	1.5 to 2.0	1.5	4
1.75 to 3.00	1.0	0.3	5
1.75 to 3.00	1.0 to 1.2	0.4	6
1.75 to 3.00	1.2 to 1.5	1.0	7
1.75 to 3.00	1.5 to 2.0	4.0	8
3.00 to 4.20	1.0	1.0	9
3.00 to 4.20	1.0 to 1.2	1.5	10
3.00 to 4.20	1.2 to 1.5	3.0	11
3.00 to 4.20	1.5 to 2.0	5.0	12

*For $\lambda_2/\lambda_1 > 1.0$ maximum average reflectance between λ_1 and λ_2 .

NOTES ON TABLE I:

1. The wavelengths λ_1 & λ_2 define the spectral region of interest.
2. The values given in this table apply at an angle of incidence ranging from 0° to 15° and ambient temperature. Reflectance measurements are to be performed at an angle of incidence between 0° and 15° (See 6.4b and 6.4c) of MIL-F-48616. When measurements are made at larger angles, the data shall be corrected to normal incidence.

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3. For $\lambda_2/\lambda_1 = 1.0$ spectral resolution required to verify the requirements in Table I shall be 0.5% or less of the specified wavelength. For $\lambda_2/\lambda_1 > 1.0$, the spectral resolution shall be 1.0% or less of $(\lambda_2 + \lambda_1)/2$. Scan speed and time constant shall be set such that the spectral features of interest can be resolved within the accuracy of 4.4.2.3.2.2 of MIL-F-48616.

Ordering Information

Anti-reflection coatings are used primarily to reduce reflections within optical systems. Performance is strongly dependent on substrate material and wavelength region. For applications for which these coatings are used to enhance transmission through an optical element by reducing reflection losses at substrate surfaces, the user should specify the required transmission. The user should be aware of the possibility of absorption within these coatings and within the substrate material, and should therefore specify the absorption requirement if applicable.

Ordering Data:

At a minimum, the substrate (See 6.2d) (nominal refractive index value) to be coated and the wavelength region of interest (See 6.2m) (λ_1 & λ_2), and the dash number (See 6.2b) shall be specified by the procuring activity (See 6.2).

Preparing activity:

Army - AR

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