SELECTION OF CAMERA FILTERS FOR COLOR PHOTOGRAPHY

One of the problems facing the serious color photographer—whether he is a hobbyist or a scientist trying to record accurately some physical phenomenon—is matching his color film to the light he is using to take the picture.

Color films are usually balanced for a particular kind of light, classified as “daylight,” “flash,” “3200 °K,” or “photoflood.” When a film is used in light with a different color balance, filters are used over the camera lens to bring the combination back into agreement. This chart provides a quick and easy way to select the right filter for almost any combination of light source and color film. A straightedge laid across the three scales so that it connects the light source and the color film will cross the center line at a point corresponding to the proper filter. Notations consisting of a series of filter designations (e.g., 80b+82c+82a) mean that all these filters should be used at once for proper correction. When color correcting filters are used, the exposure must be increased by the “filter factor” assigned by the filter manufacturer.

The chart was prepared by C. S. McCamy of the NBS Photographic Research Section.

ANOTHER NBS PUBLICATION OF INTEREST TO PHOTOGRAPHERS

Method for Determining the Resolving Power of Lenses (NBS Circular 533) provides the photographer with two sets of charts by which the resolving power of a photographic lens may be numerically measured. The accompanying booklet gives a detailed description of the procedure and technique to be followed in order that comparable values may be obtained by different observers. Additional uses of these charts are also described, including the testing of goggle lenses for definition and prismatic power, and the testing of telescopes and binoculars for definition.

NBS Circular 533,* Method for Determining the Resolving Power of Photographic Lenses, by Washer and Gardner, $1.75 (add one-fourth for foreign mailing).

COLOR FILTER NOMOGRAPH

[Diagram showing various filters and their corresponding light sources and colors.

Numbers and descriptions are indicated, such as:
- 3000K: Cool white fluorescent lamp
- 3200K: Warm white fluorescent lamp
- 4000K: Cool white fluorescent lamp
- 5000K: Daylight fluorescent lamp
- 6500K: Daylight white fluorescent lamp

The diagram includes a scale for light sources and a corresponding filter system for each.

Additional notes and specifications are also present, indicating the relationship between light sources and the colors they produce through the use of filters.

- 000: Clean blue sky near zenith
- 050: Hazy blue sky
- 120: Lightly overcast sky
- 170: Clouds, afternoon sky
- 220: Cirrostratus clouds
- 270: High altitude overcast sky
- 300: Clouds, afternoon sky
- 350: Warm white fluorescent lamp
- 400: Cool white fluorescent lamp
- 450: Daylight fluorescent lamp
- 500: Cool white fluorescent lamp
- 600: Warm white fluorescent lamp
- 700: Daylight fluorescent lamp
- 800: Cool white fluorescent lamp
- 900: Warm white fluorescent lamp
- 1000: Daylight fluorescent lamp
- 1100: Cool white fluorescent lamp
- 1200: Warm white fluorescent lamp
- 1300: Daylight fluorescent lamp
- 1400: Cool white fluorescent lamp
- 1500: Warm white fluorescent lamp
- 1600: Daylight fluorescent lamp
- 1700: Cool white fluorescent lamp
- 1800: Warm white fluorescent lamp
- 1900: Daylight fluorescent lamp
- 2000: Cool white fluorescent lamp
- 2100: Warm white fluorescent lamp
- 2200: Daylight fluorescent lamp
- 2300: Cool white fluorescent lamp
- 2400: Warm white fluorescent lamp
- 2500: Daylight fluorescent lamp
- 2600: Cool white fluorescent lamp
- 2700: Warm white fluorescent lamp
- 2800: Daylight fluorescent lamp
- 2900: Cool white fluorescent lamp
- 3000: Warm white fluorescent lamp
- 3100: Daylight fluorescent lamp
- 3200: Cool white fluorescent lamp
- 3300: Warm white fluorescent lamp
- 3400: Daylight fluorescent lamp
- 3500: Cool white fluorescent lamp
- 3600: Warm white fluorescent lamp
- 3700: Daylight fluorescent lamp
- 3800: Cool white fluorescent lamp
- 3900: Warm white fluorescent lamp
- 4000: Daylight fluorescent lamp
- 4100: Cool white fluorescent lamp
- 4200: Warm white fluorescent lamp
- 4300: Daylight fluorescent lamp
- 4400: Cool white fluorescent lamp
- 4500: Warm white fluorescent lamp
- 4600: Daylight fluorescent lamp
- 4700: Cool white fluorescent lamp
- 4800: Warm white fluorescent lamp
- 4900: Daylight fluorescent lamp
- 5000: Cool white fluorescent lamp
- 5100: Warm white fluorescent lamp
- 5200: Daylight fluorescent lamp
- 5300: Cool white fluorescent lamp
- 5400: Warm white fluorescent lamp
- 5500: Daylight fluorescent lamp
- 5600: Cool white fluorescent lamp
- 5700: Warm white fluorescent lamp
- 5800: Daylight fluorescent lamp
- 5900: Cool white fluorescent lamp
- 6000: Warm white fluorescent lamp
- 6100: Daylight fluorescent lamp
- 6200: Cool white fluorescent lamp
- 6300: Warm white fluorescent lamp
- 6400: Daylight fluorescent lamp
- 6500: Cool white fluorescent lamp
- 6600: Warm white fluorescent lamp
- 6700: Daylight fluorescent lamp
- 6800: Cool white fluorescent lamp
- 6900: Warm white fluorescent lamp
- 7000: Daylight fluorescent lamp
- 7100: Cool white fluorescent lamp
- 7200: Warm white fluorescent lamp
- 7300: Daylight fluorescent lamp
- 7400: Cool white fluorescent lamp
- 7500: Warm white fluorescent lamp
- 7600: Daylight fluorescent lamp
- 7700: Cool white fluorescent lamp
- 7800: Warm white fluorescent lamp
- 7900: Daylight fluorescent lamp
- 8000: Cool white fluorescent lamp
- 8100: Warm white fluorescent lamp
- 8200: Daylight fluorescent lamp
- 8300: Cool white fluorescent lamp
- 8400: Warm white fluorescent lamp
- 8500: Daylight fluorescent lamp
- 8600: Cool white fluorescent lamp
- 8700: Warm white fluorescent lamp
- 8800: Daylight fluorescent lamp
- 8900: Cool white fluorescent lamp
- 9000: Warm white fluorescent lamp
- 9100: Daylight fluorescent lamp
- 9200: Cool white fluorescent lamp
- 9300: Warm white fluorescent lamp
- 9400: Daylight fluorescent lamp
- 9500: Cool white fluorescent lamp
- 9600: Warm white fluorescent lamp
- 9700: Daylight fluorescent lamp
- 9800: Cool white fluorescent lamp
- 9900: Warm white fluorescent lamp
- 10000: Daylight fluorescent lamp

The diagram also includes a filter correction scale for each light source.

- Filter correction for 3000K: 0.50
- Filter correction for 3200K: 0.70
- Filter correction for 4000K: 1.00
- Filter correction for 5000K: 1.30
- Filter correction for 6500K: 1.60

The diagram provides a visual representation of how different filters affect the perceived color temperature of various light sources.

- The diagram is useful for photographers and lighting professionals to accurately adjust their equipment to match the desired color temperature.