is recognized as the only quantitative means of analyzing the color output of colored filters. This chart takes into account the precise mix and proportions of the three light values (red, blue, green) that can be combined to produce any color and pure white as well. The luminance value produced by a color filter in conjunction with its hue and saturation determine whether a certain filter will subjectively be suitable for lighting a scene. For example, a Rosco Light Bastard Amber has a transmission value of 66%, whereas a Rosco Bastard Amber has a transmission value of 75. These two color filters, although similar in terms of hue, would produce significantly different luminance values when used to light a set. The differences in luminance values might make one more suitable than the other for the purposes of production. At this point, it is a subjective evaluation as well as a quantitative one, because lighting is an art—not an exact science. If the hue and saturation of the gel that was selected were correct for the gel designers' purposes but the luminance was too high, this could be remedied by using a neutral density filter.

Neutral Density and Combination Gels

Neutral density is the name ascribed to a filter which reduces light intensity (like a net or scrim) without adding or affecting any color to the output of the light coming from a fixture. This is accomplished by suspending a specific number of particulates in a clear base to produce a neutral density filter of a specific value. Neutral density filters are widely available in densities that reduce light by 1 f stop (50% transmission), 2 f stops (25% transmission) and 3 f stops (12.5% transmission). These filters are commonly referred to as N3, N6 and N9 respectively. Their thin base makes them tough, durable, flexible and easy to handle. Neutral density can be easily mounted on frames or wet applied to windows on a temporary basis for the duration of a production. In order to provide more utility for productions, filter manufacturers have created a line of combination filters. These combination filters combine a #85A which converts daylight to 3400 K with a neutral density filter to create a filter that converts the light source and reduces its intensity. The combinations are referred to as 85N3 one stop, 85N6 two stops and 85N9 three stops, even though the light reduction is greater by 2/3 of a stop in each case because of the addition of the 85A filter. The 85A filter imparts a light transmission loss of its own which is two-thirds of an f stop. This is known as *light loss* and it is a factor to consider when using filter media. This pertains to luminance.

The Table accompanying this article illustrates the degree to which light is lost through the filter media and clearly shows there is always an exposure cost when using filters of any kind.

So far we have only scratched the surface of this topic. In next month's issue of *BT* we'll continue with the part two of our attempt to relate and decipher some of the common terms used in the craft of lighting.

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