

# High Performance Thin Film Optical Coatings

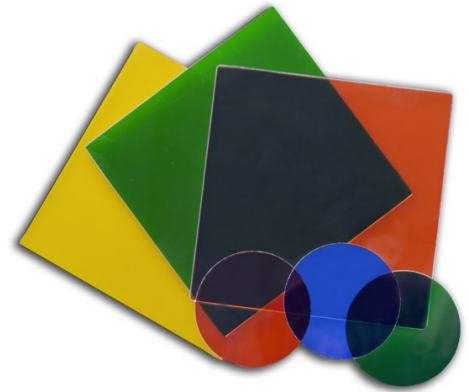
## Technical Reference Document

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### Coatings Capabilities

#### Dichroics and Color Correction Filters

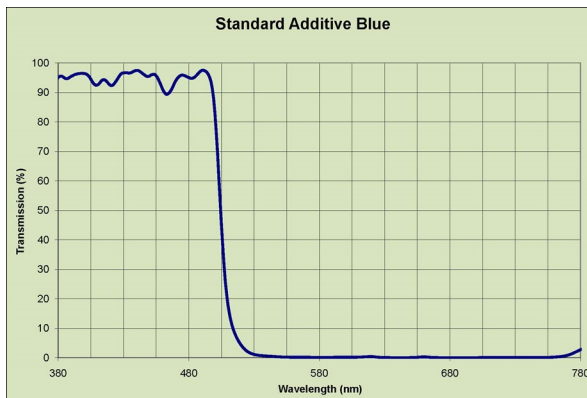
Dichroic color filter coatings are an excellent alternative to dyed plastics and glass when a beam of light must be split into two distinct beams varying by wavelength. Color correction filters alter the overall color of light to achieve a specific color and sometimes to obtain a specific color temperature. Unlike plastic color gels which age and breakdown quickly during use, dichroic filters and color correction filters are designed to stand up to the heat and UV energy in high energy light sources. High energy light sources can also have a damaging effect on dyed glasses as well, due to their heat absorbing nature.



Dichroic and color correction filters have the advantage of reflecting unwanted light instead of absorbing the energy, which allows dichroic filters to be used with much higher intensity light sources up to 550°F.

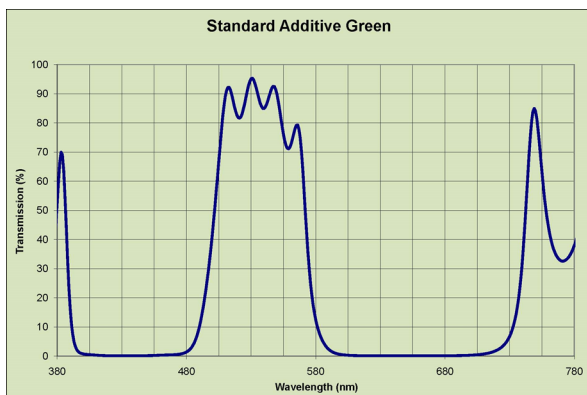
Dichroic color filters are used in a variety of applications including architectural, entertainment, scientific instruments, and engineering. Many industry standard colors have been engineered as dichroic filters.

We have over 160 different colors available. Dichroics are offered from 1.1mm (.043") thick up to 3.3mm (1.28") thick.



#### Standard Additive Blue

The Standard Additive Blue color coating has an average transmittance more than 85% from 390-480nm, 50% point at 505nm  $\pm$ 15nm, and average transmission less than 1% from 540-750nm at normal incidence.



#### Standard Additive Green

The Standard Additive Green color coating has an average transmittance less than 1% from 400-460nm, 50% point at 505nm  $\pm$ 15nm, peak transmission at more than 70%, 50% point at 575nm  $\pm$ 15nm and average transmittance less than 1% at 610-710nm at normal incidence.

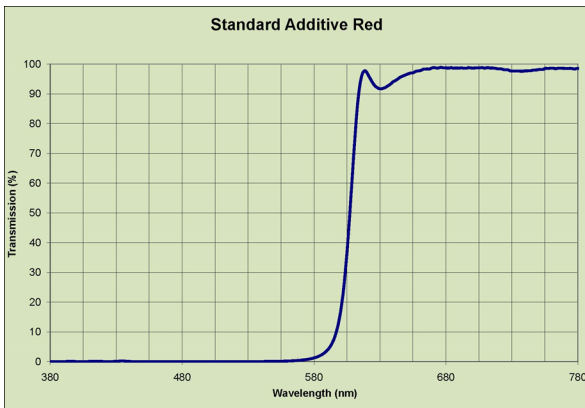
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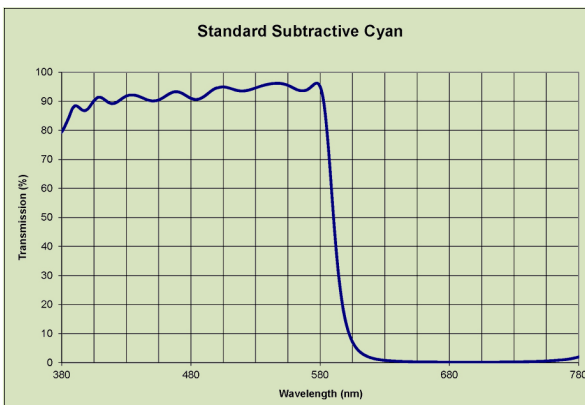
### Coatings Capabilities

#### Dichroics and Color Correction Filters - *continued*



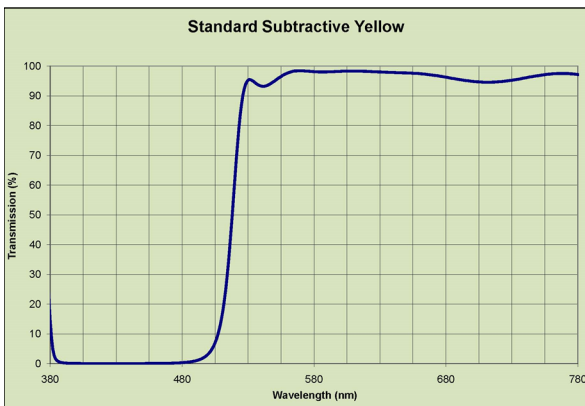
#### Standard Additive Red

The Standard Additive Red color coating has an average transmittance less than 1% from 390-550nm, 50% point at 605nm  $\pm$ 15nm and average transmittance more than 75% from 620-730nm at normal incidence.



#### Standard Subtractive Cyan

The Standard Subtractive Cyan (Anti-Red) color coating has an average transmittance more than 85% from 400-550nm, 50% point at 590nm  $\pm$ 15nm and average transmittance less than 1% from 640-720nm at normal incidence.



#### Standard Subtractive Yellow

The Standard Subtractive Yellow (Anti-Blue) color coating has an average transmittance less than 1% from 410-475nm, 50% point at 515nm  $\pm$ 15nm and average transmittance more than 85% from 550-750nm at normal incidence.

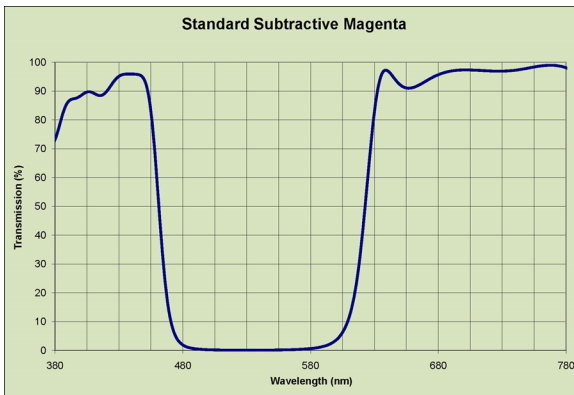
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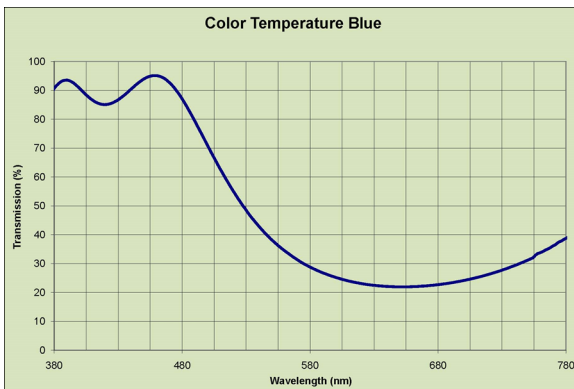
### Coatings Capabilities

#### Dichroics and Color Correction Filters - *continued*



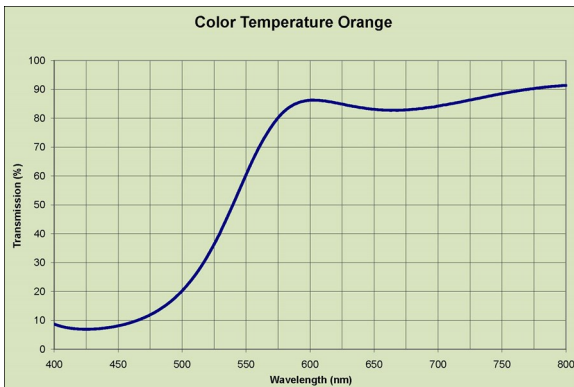
#### Standard Subtractive Magenta

The Standard Subtractive Magenta (Anti-Green) color coating has an average transmittance more than 80% from 380-470nm, 50% point at 485nm  $\pm$ 15nm, average transmittance less than 1% from 535-565nm, 50% point at 615nm  $\pm$ 15nm and average transmittance more than 80% 655-750nm at normal incidence.



#### Color Temperature Blue

A variety of standard color correcting filters are available including Color Temperature Blue (CTB). A Full CTB filter converts a 3200K light source to 5500K. Most filters are stocked in 24" diameter x 3.3 mm thick Borofloat<sup>®</sup>. Additionally, CTB filters are available in shades with lesser color temperature shift.



#### Color Temperature Orange

Another standard color correcting filter is Color Temperature Orange (CTO). A Full CTO filter converts a 5500K light source to 3200K. Most filters are stocked in 24" diameter x 3.3 mm thick Borofloat<sup>®</sup>. CTO filters are also available in shades with lesser color temperature shift.

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## Coatings Capabilities

### Dichroics and Color Correction Filters - *continued*

ZC&R Coatings for Optics has over 160 different standard dichroic colors in stock. These long lasting filters can withstand up to 550°F. These standard dichroics are offered from 1.1mm (.043") thick up to 3.3mm (1.28") thick.

#### Dichroic Filters

We have over 160 different standard dichroic color in stock. These long lasting filters can withstand up to 550°F. Dichroics are offered from 1.1mm (.043") thick up to 3.3mm (1.28") thick.

Standard dichroics are dyed glass color filters

		<b>Similar to Rosco #</b>
#120	Red	26
#121	Golden Amber	20
#122	Yellow	12
#123	Medium Green	389
#125	Medium Blue	68
#129	Blue Magenta	49
#130	Indigo	59
#131	Pink Amber	03
#132	Cyan	73
#133	Pink	36
#134	Dark Blue	80
#135	Flesh Pink	34
#137	Deep Blue	85
#138	Orange Red	25
#139	Pink Magenta	346
#142	Orange	23
#143	Fire	22
#144	Salmon	42
#145	Pale Pink	34
#146	Light Yellow Green	86
#147	Medium Yellow Green	90
#149	Pale Green	88
#150	Aqua (Turquoise)	95
#151	Straw Amber	15
#153	Pink Peach	02
#154	Medium Dark Blue	69

#### Absorption Filters

Can be heat treated up to 6" in diameter for added heat resistance, 1/8" thick. If high heat resistance is needed use dichroics.

#### Similar to Rosco #

#201	Red	27
#203	Yellow	10
#205	Pink	38
#206	Deep Green	90
#207	Medium Amber	20
#208	Medium Blue	64
#209	Dark Blue	83
#211	Light Blue	60
#401	Lavender	54
#402	Mercury Vapor Green	3304
#403	Light Green	88

In addition, we carry a number of standard absorption based filter glass materials.