

# USING · STRAND · FILTERS · IN · THEATRE

By · Francis · Reid

STRAND FILTERS OFFER A  
CHOICE OF OVER ONE  
HUNDRED SEPARATE  
COLOURS IN TWO  
RANGES.

HOW  
DO WE CHOOSE  
A COLOUR?  
AND FROM WHICH RANGE?

BECAUSE STAGE LIGHTING  
STANDS AT A CROSSROADS  
BETWEEN ART AND  
SCIENCE, THERE CAN BE  
NO EXACT ANSWER.

BUT  
THERE CAN  
BE A METHOD...  
AND THE PURPOSE OF  
THESE NOTES IS TO SUGGEST  
A PROCESS FOR CHOOSING  
AN APPROPRIATE COLOUR  
PALETTE FOR EACH PRODUCTION.



Strand Lighting



# USING · COLOUR · IN · A · STAGE · PRODUCTION

## Using colour in a stage production

The simplest motive for using coloured light on the stage is to enhance the look of the scenery, costumes and actors. This could be, for example, just a straightforward warming to provide a sympathetic rosy cosy glow for a comedy. Or adding the delicate grey steels which provided Brecht with his clear white light. (Unfiltered open white light being rather warm, Brecht, like the detergent manufacturers, adopted the traditional laundry technology of the blue bag which makes whites whiter than white.)

However light is usually coloured to provide a means of not only establishing an atmosphere but controlling that atmosphere during the time sequence of the performance. This is done by mixing colours: perhaps the most classic case is the double-covering of acting areas in a play with two sets of spotlights, one coloured cool and the other warm, so that the emotional toning of the scene can be varied as the drama unfolds.

These colours are produced by filtering the light: how does this work?

## Filtering colours

When we place a piece of Cinelux or Chromoid in front of a spotlight we feel as if we are adding colour to that light.

Put a blue in we say, as if we were adding blue. But **Take out all colours except blue** would be a more accurate request. Certainly for a deeply saturated blue. For a paler blue we might say **Take out all colours except the blue, some of the green and a trace of everything else.** Or for a different pale blue tint **Leave only all the blue, some of the red and a bit of everything else.**

It is important to remember that when we place a filter in front of a light we are taking colour away ... filtering it out.

Unfiltered light ('open white' we usually call it) contains all the colours of the spectrum. When filtering it, we emphasise certain of these colours by removing the rest.

Pigments, whether in the material of the scenery, the costumes or the actors' skin, will respond to their own colour in the light. So the lighting of any scene, costume or face in a sympathetic way will require the choice of filters which pass these colours.

On the other hand, pigments will not respond at all unless they receive some of their own colour in the light. Therefore we cannot expect coloured light to put colour into an object if that colour is not already present in pigment form. Without pigment, the object may take on some illusion of

colouring but it will be in a way that is dead rather than vibrant.

The more a filter removes colours from the light, the more that filter will emphasise the pigments which respond to the colours which remain in the filtered light. However the use of increasingly deep filters, while leading to increasingly positive colour statements, is also likely to produce a deadening of the visual effect; this is due to any lesser pigments that may be present being starved of their colours in the light.

Thus the paler tints are generally the most sympathetic filters since, in addition to passing all of their particular colour, they pass varying amounts of the remainder of the spectrum.

Flesh tones in particular have a broad pale sensitivity which needs a full light spectrum for a sympathetic response. Any emphasis with filtering can be done with only the most delicate tints. And so we should try to choose filters which pass:

*a lot of the main colour that we want to emphasise for atmospheric effect, plus*

*some of the other colours which are appropriate for stimulating a vibrant response.*

**Therefore the key to successful filter choice is to devote as much concern to the colours which are being filtered out as to the colours which are being allowed to pass through.**

## Colour mixing

In choosing a filter, it is relatively easy to predict the effect of single light. We can try the effect by shining filtered light on a piece of scenery or a piece of costume fabric or an actor's face. Or if the set and costumes are going to be executed faithfully from the designs, we can experiment with filtered light on the drawings and or models. Our eye will tell us which filters produce the most sympathetic response.

But prediction of the effect of several overlapping filtered lights is not so easy. Fortunately, however, their effect is additive. That is, while filtering a light removes parts of the spectrum, an overlap of various colours from various filtered lights will tend to put the spectrum together again. So overlapping of coloured lights moves us towards near white neutrality.

Indeed this is the basis of the colour mixing that we use to produce a range of colours from two or three complementary colours. Although mixing of the primaries (red, blue and green) will produce any colour, this is a method now only occasionally used since not only do the deeply saturated filters waste

light but the crossfade between colours is via a sequence of intermediates that can perhaps best be described as unsubtle.

For the face lights in a play we might choose a pair of tints which will mix to provide a subtle range from a palest cool steel through neutral to a slightly warm golden rose. Whereas, for the atmospheric sculptural washes in a musical, we might opt for a range of middle saturation pink, blue and amber which will offer several quite colourful combinations yet also add up to a near-white neutral.

Like everything else in lighting, we have to decide what visual effect we want to achieve and then find a technical means of doing it. There is a progression through four key questions requiring answers ...

## Planning filter choice

**How is colour to be used in this production?**

*to enhance the clarity of white light?*

*to enhance the visual quality of the performers and their stage environment?*

*to support the progress of the action with appropriate changes of atmosphere?*  
*or??*

**How naturalistic will the colours be?**

*approximating to sunshine, moonshine, and practical lamps?*  
*considerably heightened but still with a natural logic?*  
*non-naturalistic?*  
*or??*

**How contrasty will the colour palette be?**

*delicate tints?*  
*strong tones?*  
*heavy saturates?*  
*or??*

**What are the colour characteristics of the set & costume designs?**

*do the cools tend towards blues with a greenish or with a reddish content?*  
*do the warms tend towards pinks or golds?*  
*or??*

## The filter palette

This questioning process enables a gradual narrowing down of choice towards a relatively small palette of filters which will be appropriate for a particular production.



# FILTER · CHART

## Filter chart

Strand colour swatch books list filters by their numbers. This assists filter management since colours are always referred to by these numbers, both on plans and in conversation. However when choosing filters it is logical to find first the colour, then the depth of saturation and finally the appropriate shade. This chart groups Strand Filters according to colour, with subdivision into strengths and then into shades.



## BLUES

A full range of blues from the most delicate through progressive saturation to intense primary : choice is by depth of saturation and by variation in red/blue content

218	—	The palest of the blue tints. Passing more red than green, they offer a light which is delicate and cool yet sympathetic to flesh.
203	—	
202	—	
—	167	These tints are slightly stronger but still provide a blue with a bias towards a reddish content.
—	145	
201	—	
417	117	Similar strength but biased towards green rather than red and consequently less sympathetic to facial flesh tones.
418	—	
—	87	
461	161	More positive blues. Cooling the scene yet sympathetic to faces, they are particularly useful for sustained operatic moonlight.
474	—	
—	86	Stronger blues for sculpting rather than facial visibility. Useful in cross and backlights. This group will enhance sets and costumes which have reddish blue pigments.
—	163	
—	91	
465	—	
443	—	Again for dimensional sculpting rather than facial visibility. But sympathetic to sets and costumes with tendencies towards greenish-blue pigmentation.
441	141	
444	144	
483	—	
432	91	Saturated, yet not deepest, blues with a reddish tendency. Useful for sky floods and in backlights, particularly parcans or the more powerful fresnels.
—	92	
—	140	
415	115	Similarly saturated blues with a quite positive bias towards green. Can be particularly useful in a groundrow mix, whether suggesting water or just strengthening the illusion of a horizon.
416	116	
—	162	
—	93	The deepest most saturated blues for tops of cycloramas, and for backlighting with parcans.
419	119	
420	—	

While it is hoped that this chart will lead towards a choice, final selection can only be from the swatch book.

Where colours in both the Strand ranges are identical, or virtually identical, they are shown on the same line. Cinelux numbers beginning with a 2 are colour correction filters which have a precise role in adjusting light for the technologically sensitive eyes of film and video: they have been included in this chart when they also offer a useful tint for the

human eye. (236 and 237 will be also found useful for adjusting the colour of follow spots with discharge lamp sources, particularly when touring to theatres with different types of follow spot.)

Removal of the prefix 4 from **Cinelux** or 1 from **Chromoid** number will in most cases give an appropriate number for using **Cinemoid** in older cooler lights in short run shows.



## REDS

So saturated that use is normally restricted to atmosphere: only used on flesh for a very special effect.

406	106	The deepest most saturated reds (406 is primary).
482	—	Normally only usable in positive statements, such as a parcan downlight mix in music theatre.
464	164	A little paler but still concentrated. Note the slight blue content of 466.
—	135	
466	—	
—	114	Saturated ruby (enriched with a touch of blue)

## ROSES

Paler than the reds but still powerful, and not for faces.

428	—	Group of mid-saturation reds whose varying blue content indicates a progress towards magenta.
448	—	
—	95	
413	113	

## PINKS

Sympathetic warm tints used when the general warm toning of the set and costumes inclines towards pinks and reds rather than golds and ambers.

—	90	Pinks with a blue component, getting progressively deeper. The darkest are rather strong for the faces in a naturalistic play but perhaps more possible in a musical.
—	108	
410	110	
411	111	
—	112	
407	—	Pinks with a tendency towards gold rather than blue.
409	—	
457	157	
476	176	
—	178	
453	—	Pale Pink tints with a hint of gold. 454 is a classic warm component of warm cool emotional mixing in near naturalistic drama.
454	154	
427	127	Pinks with a chocolate-brown feel. Emitted light is a pale tint, but beware light intensity losses through deceptively deep filters.
456	—	



## YELLOWS

Simulate sunlight and the quality of warmth associated with it, especially when the sky is clear.

–	150	Palest yellow tints for delicate sunlight.
212	–	
401	101	Strong saturated yellows, particularly unflattering to flesh.
–	149	
–	146	Strongly saturated chrome for bold occasional use.

## STRAWS

The straws also suggest sunlight warmth but perhaps of a less direct kind.

459	159	A series of pale straw tints, with varying tendencies towards yellow or amber. Although all are sufficiently pale to be acceptable on flesh, straws can have a somewhat deadening effect on faces.
223	–	
–	98	
403	103	
206	–	
205	–	

## GOLDS

The golds are the main alternative to pinks for a warmth that is sympathetic to facial skin tones.

462	–	Pale gold tints provide warm actor light and fall sympathetically on sets and costumes where the warms are predominantly gold rather than pink.
451	–	
452	152	
236	–	Stronger gold tints with an apricot tendency, often used for warm interiors.
204	–	
447	–	
237	–	Palish gold tints with a tendency to rose (or can be considered as pale pinks with a tendency to gold).
–	175	

## AMBERS

Strong positive colours needing particular care in use. Orangy ambers tend to be more sympathetic than the yellowish ones, but choice will depend on set and costume pigments.

402	102	Medium strength ambers with a tendency towards yellow. Potential to deaden skin and costumes requires care in use.
404	–	
–	97	Medium strength ambers with a more golden component. Richer and potentially less damaging than the more yellow ambers.
479	–	
405	–	Rather saturated ambers with tendency towards gold which aids a sympathetic response from sets and costumes when used as a back and side sculptural light.
434	134	
458	158	

## GREENS

Generally disaster on flesh, particularly darker skin tones. The palest can be used as a component of sunlight and gaslight, but most greens are strictly for scenery.

213	–	Palest green tint. A hint of yellow.
438	–	A little stronger.
–	151	Similar strength but more limey.
219	–	Mid saturation, with considerable blue tendency.
421	121	Similar saturation but without the blue. 421 is the paler and yellower of the two.
422	122	
–	123	
–	94	Strong saturated greens with 94 showing blue tendencies. (439 is primary).
424	124	
439	–	

## NEUTRAL LAVENDERS

As face tints, the lavenders tend to appear cold or warm according to the main colour toning of the scene.

–	89	Classic pale lavenders (Cinemoid 36 is the legendary surprise pink), sympathetic to faces and appearing cool or warm according to surrounding colour.
436	136	
470	170	
–	171	Lilac lavenders with a slightly more blue content.
–	172	
437	137	Rather more violet but still neutral in their capacity to marry with both cold and warm surrounding tonings
442	–	

## DEEP LAVENDERS AND PURPLES

Used only for particularly strong positive statements. When required for atmospheric washes these colours can be relatively easily achieved (but without such depth of intensity) by mixing a palette of reds and blues.

480	–	Deep lilac lavenders for sculpting.
–	88	
481	–	Very saturated purple including a lot of blue.
–	96	Richly saturated positive purples.
426	126	



## SOME · FILTER · TIPS

- Never choose a filter by its name. Look at the colour of the light transmitted through it by holding a sample up to light. Or, better still, project light through the filter and check response on designs, material, flesh, etc.
- Blues with a green content can be rather unbecoming on actors faces: try to avoid in extended moonlight scenes.
- Lavenders are particularly sympathetic to faces. They also have the uniquely useful quality of not only blending well with other lights but taking on something of their character: thus they tend to appear warm or cold according to the predominant trend of the colouring of the other lights.
- The high intensity of the light produced by par cans allows use of the most heavily saturated filters. Note that the colour from a par can will be considerably paler than the light from a conventional lens spotlight of similar wattage.
- If atmospheric colour is concentrated in the backlights and some of the side lighting, neutrals and pale tints can be used from the front to provide a visibility which is sympathetic to face and costume without diluting the overall colour effect.
- A slight colour differential between left and right sides can be used to help increase the sculptural modelling of an actor. This can be particularly valuable if dimmer sharing prevents directional keying by means of an intensity imbalance.
- When using break-up gobos to texture the light, slightly different gels in overlapping lamps will increase the depth of the texture. It also helps to use split-colours in each spot (ie two half size pieces of filter butt-joined in the frame).
- A floor which has a fine spatter of paint colour will be much more responsive to filtered light than a plain floor. This is particularly so with a black floor.
- It is difficult to light white cycloramas to a dark blue. Cyc cloths should have a very pale blue pigmentation which will aid response to blue light but not upset response to the rest of the spectrum.
- Use slightly different blues at the bottom of a sky to those at the top. Normally slightly paler at the bottom but even when they have the same saturation, the difference produces a gradation of colour up the cloth, enhancing the feeling of horizon and making the sky seem deeper and further away.
- Colour-changing mechanisms (wheels, scrollers etc) enable us to change remotely the filter in a light, but they do not remove the need for double-covering with twinned lights for cross-fading and palette-mixing.

## DIFFUSION · FILTERS

For diffusion of the light beam, there are frosts which uniformly soften the light (particularly its edge) and silks which not only soften but spread it in one direction (that direction being selected by the way in which the filter is cut and positioned in its frame). For plain diffusion (ie without colour filtering). Cinelux 253 and Chromoid 131 are gentle soft-edging frosts while 228 and 84 are directionally spreading softening silks. For heavier frosting consider Chromoid 100 and 99 or Cinelux 429.

To assist coverage of cycloramas when space is tight, there is a chromoid group which combine saturated filters with a directional diffuser: these are 180 (red silk), 181 (blue silk), 182 (green silk), & 183 (amber silk). And Cinelux has a group (484, 486 & 488), known as cosmetics, which combine subtle tints with a gentle frost.



# CHOOSING · A · FILTER · RANGE

Choose the appropriate filter range by weighing cost against type of use.

Consider **CINELUX** as the standard range.

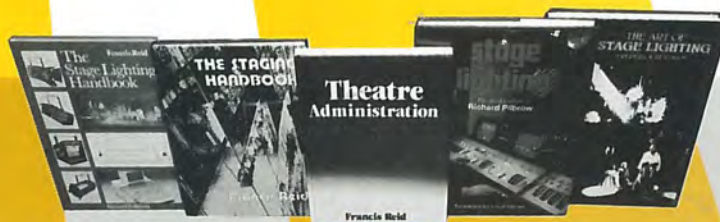
Choose **CHROMOID** for sustained use in parcans and the latest high efficiency spotlights with halogen lamps. Its additional cost will be offset by its life.

**Cinelux** is available in  
Rolls 7.62m x 1.22m (25' x 4')  
Full Sheets 1.22m x 0.55m (48" x 21")  
Half Sheets 0.61m x 0.55m (24" x 21")

**Chromoid** is available in  
Rolls 15.24m x 0.61m (50' x 2')  
Sheets 0.61m x 0.55m (24" x 21")

**Chromoid** is available in packs of 25 sheets.

**Cinelux** in packs of 25 half sheets.



## Further Reading by Francis Reid



**The Stage Lighting Handbook**  
(now in its 3rd edition)

**The Staging Handbook**  
**Theatre Administration**  
Published by A & C Black in London  
and Methuen Inc in New York.

**Lighting the Amateur Stage**  
Published by Strand Lighting

**Teaterljus**  
Published by  
entre/Riksteatern, Stockholm  
(translated by Hans-Åke Sjöquist)

**Manual de Iluminación Escénica**  
Published by  
Luis Cernuda Fundacion, Seville  
(translated by Héctor Morales)

also  
Richard Pilbrow:  
**Stage Lighting (Studio Vista)**  
Frederick Bentham:  
**The Art of Stage Lighting**  
(A & C Black)



## Strand Lighting

Strand Lighting Limited,  
Grant Way (off Syon Lane),  
Isleworth,  
Middlesex TW7 5QD.  
Telephone: 01 560 3171  
Telex: 27976 Fax: 01 568 2103.

LONDON · PARIS · ROME · BRAUNSCHWIEG · LOS ANGELES · NEW YORK · TORONTO · HONG KONG · MELBOURNE