

# FUJICOLOR SUPERIA 400 [CH]

## 1. FEATURES AND USES

FUJICOLOR SUPERIA 400 CH is a daylight type color negative film with an ISO speed rating of 400. The use of color compensating filters is not required when exposures are made either under daylight conditions or with electronic flash. NRT (N-Real Tone) and ELS (Emulsion Layer Stabilizing) Technologies as well as other emulsion innovations impart the features outlined below.

This film yields the best results when prints and enlargements are made on FUJICOLOR Papers.

Features	Results
<ul style="list-style-type: none"> <li>• <b>Excellent Skin Tone Reproduction</b></li> </ul>	<ul style="list-style-type: none"> <li>• Creates natural and smooth skin tone beauty</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Subtly Fine Grain Quality</b></li> </ul>	<ul style="list-style-type: none"> <li>• Provides image smoothness even under high magnification</li> </ul>
<ul style="list-style-type: none"> <li>• <b>High Film Speed and Image Quality</b></li> </ul>	<ul style="list-style-type: none"> <li>• Allows not only normal outdoor condition exposures, but also low illumination available light photography and action-stopping exposures.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optimum Spectral Sensitivity Balance</b></li> </ul>	<ul style="list-style-type: none"> <li>• Excellent color reproduction even under tungsten and fluorescent light conditions</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Superb Raw Film Storability and Latent Image Stability</b></li> </ul>	<ul style="list-style-type: none"> <li>• Provides processing consistency and higher finished print quality</li> </ul>

## 2. SPEED

Light Source	Speed	Filter
Daylight	ISO 400/27°	None
Tungsten Lamps (3200K)	ISO 100/21°*	LBB-12** (or Kodak No. 80A)

\* Indicates the effective speed resulting from designated filter use.

\*\* Fuji Light Balancing Filter

## 3. FILM SIZES, PRODUCTION NUMBER AND BASE MATERIAL

	Sizes	Production Number
Rolls	• 135 ..... 12, 24 and 36 exp.	G51 and above
	• 120 ..... 12 exp. (6 × 6)	V51 and above
	• 220 ..... 24 exp. (6 × 6)	

Base Material ..... Cellulose Triacetate

## 4. EXPOSURE GUIDE AND EXPOSURE UNDER VARIOUS LIGHT CONDITIONS

Use an exposure meter for exposure determination. If a meter is not available, refer to the following table.

### Daylight Exposure Guide Table

Light Conditions	Seashore or Snow Scenes Under Bright Sun	Bright Sunlight	Hazy Sunlight	Cloudy Bright	Cloudy Day or Open Shade
Lens Aperture	f/22	f/16	f/16	f/11	f/8
Shutter Speed (sec.)	1/500	1/250			

- The foregoing settings are for 2 hours after sunrise and 2 hours before sunset.
- Provide lens openings 1/2 stop smaller during the summer and 1/2 stop larger during the winter.
- Excessively bright (or dark) or backlighted subjects may require plus or minus 1 stop lens opening adjustments.

### Low Light Exposure Guide Table

Light Conditions	Fine Weather Daytime Indoor Scenes	Nighttime Indoor Scenes (under Fluorescent Light)	Evening Scenes	Night Scenes
Lens Aperture	f/2.8 to 4	f/2 to 2.8	f/2.8 to 4	f/2 to 2.8
Shutter Speed (sec.)	1/60	1/30	1/60	1/30

### NOTE

Since light intensities for indoor and night scenes vary widely from location to location, the data above should be used only as a guide.

**Daylight**

Even when exposed under morning or evening twilight conditions or when color temperatures are low, no special filter use is needed because printing-related color compensation will result in color balanced prints.

**Electronic Flash**

- Since electronic flash characteristics are similar to daylight, no filters are required. Effective light output and color balance will differ with equipment type, age and other factors, requiring thereby initial exposure tests.
- With shutter speeds slower than 1/60th of a second, the influence of non-flash light source such as modeling lamps and room illumination may cause undesirable color balance shifts. Make test exposures.
- Adjust lens openings for electronic flash according to the following formula.

$$\text{Lens Aperture (f-number)} = \frac{\text{ISO 400 Electronic Flash Guide Number}}{\text{Electronic Flash-to-Subject Distance (meters or feet)}}$$

- Set the film speed at ISO 400. Since the amount of light reflected onto subjects from surrounding surfaces will differ with the conditions, refer to the flash unit instructions.

**Photo-Reflector Lamps (Daylight Photoflood Lamps)**

- Daylight photoflood lamps tend to result in under-exposure, so it is sometimes essential to increase exposure light output beyond that indicated by an exposure meter.
- Color balance and light output will differ with lamp configuration, use duration and applied voltage. It is essential that exposure conditions be determined in relation to the particular lighting equipment employed.

**Fluorescent Lamps & High-Intensity Discharge Lamps**

- The best results will be obtained when exposures are made under the following filter use conditions. In order to overcome the changes in brightness and color associated with alternating current lighting equipment, use shutter speeds of 1/125th of a second for high-intensity discharge lamps and 1/30th of a second or longer for fluorescent lamps.

- For exacting work, test exposures are recommended.

Lamp Type	Day-light (D)	Cool White (CW)	White (W)	Warm White (WW)	Deluxe White Mercury	Clear Mercury
Color Compensating Filters*	30M +30Y	20M	10C +20M	30C +30M	30M +10Y	70M +70Y
Exposure Corrections**	+1	+2/3	+2/3	+1	+2/3	+2

\* Fuji Color Compensating Filters (or Kodack CC Filters)  
 \*\* Exposure Correction values include filter exposure factors. These values are added to unfiltered exposure meter readings. "+" = Lens Opening.

- When the fluorescent lamp type is unknown, use a 30M color compensating filter and a +1 stop lens opening. Under most conditions this will provide acceptable results. Since lamp color temperatures will vary with manufacture and use duration, the above designated filters are for initial lamp use conditions.

**Tungsten Lamps**

Fuji Light Balancing Filter LBB-12 (or Kodak No. 80A) is recommended with photoflood lamps. Under these conditions a 2 stop larger lens opening will also be necessary.

**5. LIGHTING EQUIPMENT**

The conditions of umbrellas, reflectors, diffusers and like devices, may modify photographic light quality. Periodically check lighting equipment for deterioration.

**6. LONG EXPOSURE COMPENSATION**

No exposure or color balance compensation is required for exposures within a 1/4000 to 2 second shutter speed range. However, for exposures of 4 seconds or longer, provide the compensations indicated below.

Exposure Time (sec.)	1/4000 – 2	4	16	64
Exposure Corrections*	Unnecessary	+1/3	+1	+1 1/3

\* "+" = Lens Openings

Except for special effects, the normal intensity ratio for main-to-fill subject lighting should remain within 1:4 limits.

**7. FILM HANDLING**

- Expose film before the expiration date indicated on the film package and process immediately after exposure.
- When loading and unloading roll film, avoid direct sunlight. If there is no shade, turning one's back toward the sun will shade the film.
- Camera-loaded film should be exposed and processed immediately.
- Under certain conditions the X-ray equipment used to inspect carry-on baggage at airport terminals will adversely affect photographic film (cause fogging). The adverse effects of this are increased with the strength of the X-rays, the speed of the film, and the cumulative number of inspection exposures. Therefore it is recommended that at each inspection the film be removed from the baggage and that airport security personnel be asked to inspect the film manually.
- Film fogging may occur in hospitals, factories, laboratories and other locations using X-rays and other radiation sources.

**8. FILM STORAGE**

**Unprocessed Film**

- Storing exposed or unexposed, but unprocessed films under high temperature and humidity conditions will cause adverse speed, color balance and physical property changes. Store film under the following conditions.
  - Ordinary Storage: Protect from heat
  - Extended Term Storage: Below 0°C (32°F)

- New building materials, newly manufactured furniture, paints and bonding agents may produce noxious vapors. Do not store film, loaded cameras or film holders near these substances.
- When refrigerated film is removed for use, allow it to reach room temperatures before opening (at least one hour). Opening while temperatures are still low may cause moisture condensation.

**Processed Film**

Light, high temperatures and humidities cause color changes in processed films. Therefore, place such films in mounts or sleeves and store in dark, dry, cool and well ventilated locations under the following conditions.

- General Storage Conditions: 25°C (77°F) at 30 to 60% RH
- Extended Storage Conditions: 10°C (50°F) at 30 to 50% RH

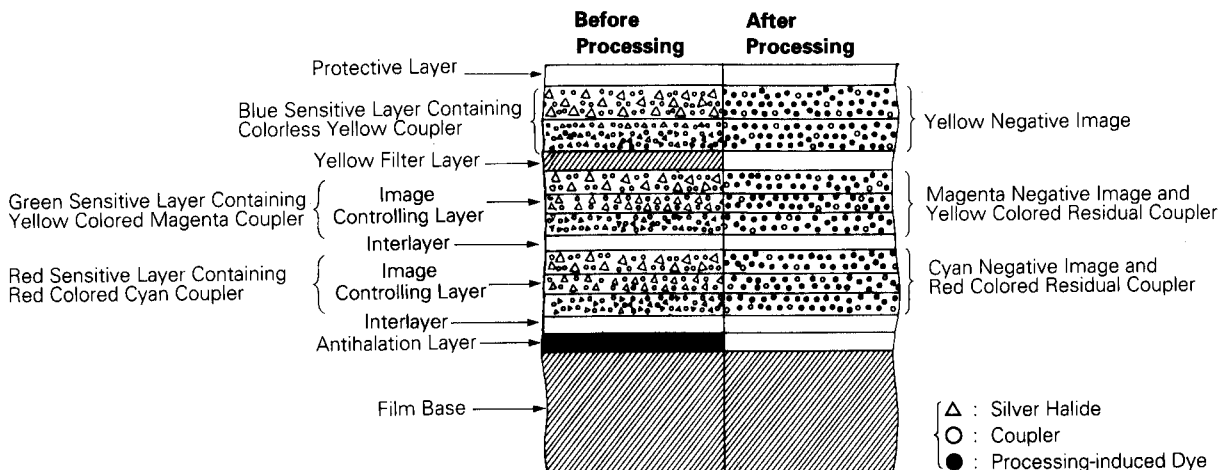
**9. PROCESSING**

This film is intended for processing in Fujifilm Processes CN-16, CN-16Q, CN-16FA, CN-16L, or Kodak Process C-41.

**10. JUDGING EXPOSURE RESULT**

SUPERIA 400 exposure adequacy can be accurately estimated by using an electronic densitometer equipped with Status M filters. When read through the RED filter, an 18% gray card receiving the same illumination as the subject, should render density readings between 0.80 and 1.00. These densities are for exposures made under recommended light sources and with optimal film processing.

**11. FILM STRUCTURE**



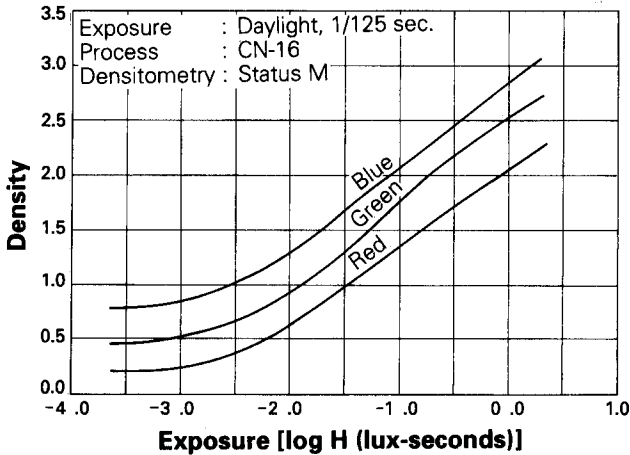
**12. DIFFUSE RMS GRANULARITY VALUE** ..... 4

Micro-Densitometer Measurement Aperture: 48 μm in diameter  
 Magnification: 12X  
 Sample Density: 1.0 above minimum density

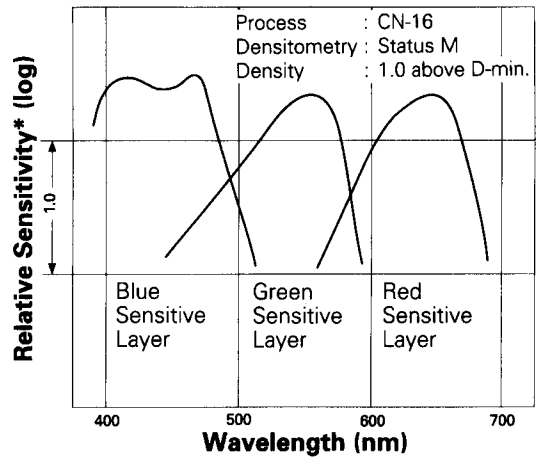
**13. RESOLVING POWER**

Chart Contrast 1.6 : 1 ..... 50 lines/mm  
 Chart Contrast 1000 : 1 ..... 100 lines/mm

**14. CHARACTERISTIC CURVES**

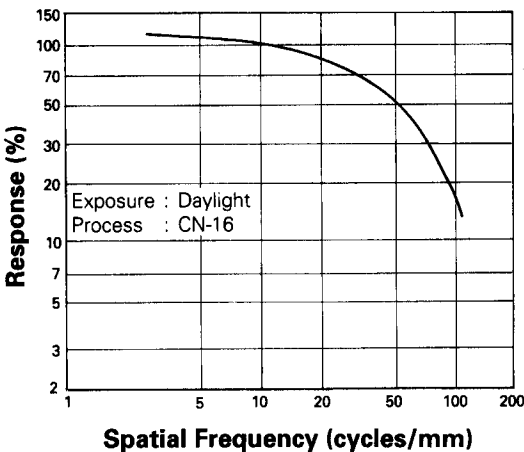


**15. SPECTRAL SENSITIVITY CURVES**



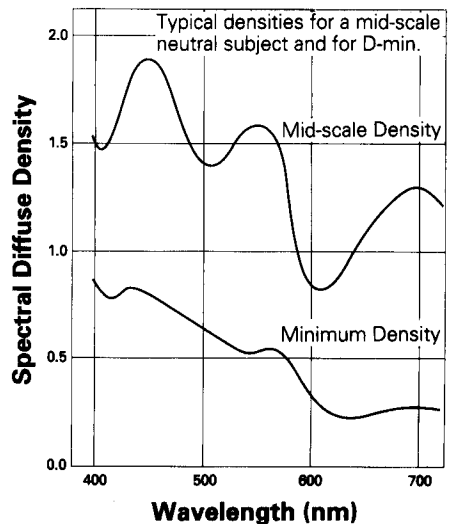
\* Sensitivity equals the reciprocal of the exposure (ergs/cm<sup>2</sup>) required to produce a specified density.

**16. MTF CURVE**



The foregoing data is published on the basis of 135 size materials.

**17. SPECTRAL DYE DENSITY CURVES**



**NOTICE** The sensitometric curves and other data herein published were derived from particular materials taken from general production runs. As such they do not represent in exact duplication the characteristics of every lot produced nor a standard for Fujifilm products. Further, Fujifilm is in a constant process of upgrading quality which may result in data changes without notice.