

# DATA SHEET

**COLOR REVERSAL FILMS**

## FUJICHROME Velvia for Professionals [RVP]

### 1. FEATURES AND USES

FUJICHROME Velvia for Professionals [RVP] is a daylight type high image quality color reversal film with an ISO speed rating of 50. This film retains extremely fine grain, resolving power, sharpness and brilliant color reproduction. Designed for the wide ranging needs of fashion, product, art, landscape and scientific photography; when precise rendering and enhanced color tone are especially important, this is the film of choice. Further since suitability for photomechanical reproduction and color print production has been fully taken into consideration, this film is optimized for use as originals in high-quality photomechanical printing as well as large-sized poster and normal print production.

Features	Results
<ul style="list-style-type: none"> <li><b>Extra Fine Grain, Excellent Sharpness and High Resolving Power</b></li> </ul>	<ul style="list-style-type: none"> <li>Grain, sharpness and resolution well exceeding current standards for ISO-50 reversal films</li> </ul>
<ul style="list-style-type: none"> <li><b>Dynamic Color Reproduction and Profound Color Tone Depiction</b></li> </ul>	<ul style="list-style-type: none"> <li>The highest chroma and most vibrant skin tones of all FUJICHROME films</li> <li>Superb color depiction featuring deep, rich hues</li> </ul>
<ul style="list-style-type: none"> <li><b>Neutral Grays and Unsurpassed Shadow Depth</b></li> </ul>	<ul style="list-style-type: none"> <li>Fine neutral grays from the highlights to the shadows</li> <li>The highest maximum density to date for more profound shadows and deeper blacks</li> </ul>
<ul style="list-style-type: none"> <li><b>Push-processing Suitability</b></li> </ul>	<ul style="list-style-type: none"> <li>Push-processing allowable up to one stop (equivalent to ISO 100) for underexposure compensation without color balance loss</li> </ul>

### 2. SPEED

Light Source	Speed	Filter
Daylight	ISO 50/18°	None
Tungsten Lamps (3100K)	ISO 16/13°	No. 80A**(LBB-12***)

\* Indicates the effective speed resulting from designated filter use.  
 \*\* Wratten Filter  
 \*\*\* Fuji Light Balancing Filter

- Speed and color compensating filter values are included in each of the sheet film boxes. Use these values in exposure determination.

### 3. FILM SIZES, EMULSION NUMBER, BASE MATERIAL AND THICKNESS

Sizes		Emulsion Number
Rolls*	<ul style="list-style-type: none"> <li>135 ..... 36-exp. .... 36-exp. (5-roll and 20-roll packs)</li> <li>35 mm x 30.5 m (100 ft)</li> <li>120 ..... 12-exp. .... 12-exp. (5-roll packs)</li> <li>220 ..... 24-exp. (5-roll packs)</li> </ul>	#501-
Sheets*	<ul style="list-style-type: none"> <li>4 x 5 in.(10.2 x 12.7 cm) 10 sheets and 50 sheets</li> <li>8 x 10 in.(20.3 x 25.4 cm) 10 sheets and 50 sheets</li> <li>9 x 12 cm 10 sheets</li> <li>13 x 18 cm 10 sheets</li> <li>QuickLoad (4 x 5 in.) 20 sheets</li> </ul>	

\* Some sizes are not available in certain markets.

Base Material ..... Cellulose Triacetate  
 Base Thickness ..... Rolls 135 ; 127 μm  
 120 ; 98 μm  
 220 ; 98 μm  
 Sheets ; 205 μm

### 4. EXPOSURE GUIDE FOR VARIOUS LIGHT CONDITIONS

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

Light Conditions	Seashore or Snow Scenes under Bright Sun	Bright Sunlight	Hazy Sunlight	Cloudy Bright	Cloudy Day or Open Shade
Lens Aperture	f/16	f/11	f/8	f/5.6	f/4

(Exposure Time 1/125th Sec.)

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

### Daylight

Under normal daylight conditions, color balancing filters are not necessary, but the following exposure conditions may require the indicated filters.

Subject Conditions	Filter	Exposure Correction
Open shade in fair weather and shaded landscapes.	UV Filter No. 2C* or No. 2B* (SC-40 or SC-41)**	None
Bright distant views, snow scenes, seaside locations, aerial shots and open landscapes.		
Close-ups of plants and subjects having bright colors.		

Excessively high or low subject color temperatures may require the following filters and exposure corrections.

Subject Conditions	Filter	Exposure Correction
High Color Temperature: Cloudy weather landscapes or portraits and clear weather open shade.	No. 81A* (LBA-2)***	+1/3 stop ****
Low Color Temperature: Morning and evening twilight scenes and portraits.	No. 82A* or No. 82C* (LBB-2 or LBB-4)***	+1/3 to +2/3 stop ****

\* Wratten Filters

\*\* Fuji Sharp-Cut Filter

\*\*\* Fuji Light Balancing Filter

\*\*\*\* A "+" followed by a number indicates the required increase in lens opening.

### Electronic Flash

- Electronic flash produces light similar to daylight, so filters are not needed. However, the possibility of undesirable effects on color balance, due to various factors (differences in equipment, amount of use, etc.) should be taken into consideration. Test exposures are recommended.
- The use of a flash meter is advisable, but the following formula can also be used to obtain a satisfactory lens opening.

$$\text{Lens Aperture (f-number)} = \frac{\text{Electronic Flash Guide Number (at ISO 100)}}{\text{Electronic Flash-to-Subject Distance (meters or feet)}}$$

- Set the film speed at ISO 100. Since the amount of light reflected onto the subject from surrounding surfaces will differ with the conditions, refer to the flash unit instructions.

### Daylight Photoflood / Photo-Reflector Lamps

- Daylight-type photoflood or photo-reflector lamp output may be lower than that indicated by an exposure meter, so it is advisable to compensate for this by increasing exposure time or the lens opening. Whenever possible, test exposures are recommended.
- Other factors requiring consideration when determining the exposure time are lamp configuration, use duration and line voltage, as they may affect lamp output and color balance.

### Fluorescent Lamps

- The use of the following combinations of color compensating filters is advisable when photographing under fluorescent lighting.
- For exacting work, however, test exposures are recommended because lamp brand and age may affect light output and color balance.

Fluorescent Lamp Type	White (W)	Daylight (D)	Cool White (CW)	Warm White (WW)
Color Compensating Filters*	40M+10B	40R+10M	40M+5R	No. 80C + 25M (LBB-8 + 25M)
Exposure Corrections**	+1 2/3	+1 2/3	+1 1/2	+2

(Exposure time: 1/4 second)

\* Wratten CC Filters (or Fuji Color Compensating Filters) are recommended.

\*\* Exposure correction values include filter exposure factors. These values are added to normal exposure meter readings. A "+" followed by a number indicates the required increase in lens opening.

- NOTES**
- Use a shutter speed slower than 1/30 second.
  - For shutter speeds of 4 seconds or more, exposure adjustments will be necessary to compensate for reciprocity-related failure.

### Tungsten Lamps

- A Wratten Filter No.80A (or Fuji Light Balancing Filter LBB-12) is required when using 3200K tungsten lighting. A 1 2/3-stop larger lens opening is also required.
- If household tungsten lighting (room lamps, etc.) constitutes the main source of illumination, in addition to the above filter a Wratten filter No. 82A (or Fuji Light Balancing Filter LBB-2) is required, plus an aperture increase of 1/3 stop (total 2 stops).

## Mixed Light Sources

Under mixed light conditions, the basic filter configuration should suit the main light source. In the case of cameras with TTL metering, there is no need for additional exposure compensation for any CC filter(s) used.

## 5. LONG EXPOSURE COMPENSATION

No exposure correction or color balance compensation is required for exposures within a shutter speed range of 1/4000 second to 1 second. However, for exposures of 4 seconds or longer, reciprocity-failure related color balance and exposure compensations are required.

Exposure Time (sec.)	1/4000 to 1	4	8	16	32	64
Color Compensating Filters	None	5M	7.5M	10M	12.5M	Not recommended
Exposure Corrections*		+1/3	+1/2	+2/3	+1	

\* Exposure correction values include filter exposure factors. These values are added to unfiltered exposure meter readings. A "+" followed by a number indicates the required increase in lens opening.

## 6. EXPOSURE PRECAUTIONS

With artificial light, such as electronic flash, photoflood, fluorescent, tungsten, mercury vapor, etc., the lamp output and color temperature may be affected by such factors as brand, age of equipment and line voltage. Reflectors and diffusers can also influence light intensity and color temperature.

## 7. FILM HANDLING

- Expose film before the expiration date indicated on the film package and process as soon as possible after exposure.
- When loading and unloading roll film, avoid direct sunlight. If there is no shade, shield the film from the sun with your body.
- Handle sheet film in total darkness. Avoid touching emulsion surface. (The use of a safelight will cause fogging.)
- Unprocessed film should be kept away from X-rays used to inspect checked-in baggage, etc. at airport terminals. Strong X-ray can cause fogging of unprocessed film. It is recommended such film be placed in your carry-on baggage whenever possible. (Consult with airport personnel for details.)
- Film fogging may occur near X-ray equipment used in hospitals, factories, laboratories and other locations. Always keep film away from possible sources of radiation.

## 8. FILM STORAGE

### Unprocessed Film

- Storing exposed or unexposed film under hot and humid conditions may adversely affect the speed, color balance and physical properties of the film. Store film under the following conditions.
  - Short-to-medium-term storage :  
Below 15°C (59°F) ..... (Refrigerator)
  - Long-term storage :  
Below 0°C (32°F) ..... (Freezer)
- Building materials, finishes used on newly manufactured furniture, paints and bonding agents may produce gases which could affect photographic film. Do not store film, lightproof boxes of film, loaded cameras or film holders near these materials.
- Before use, films taken from cold storage should be allowed to stand at room-temperature for over 3 hours for refrigerated film, and over 6 hours for frozen film. Long rolls such as 100 feet (30.5 m) will require additional time. Opening a package/box of film that is cold may cause harmful condensation.

### Processed Film

Exposure to light, high temperature and humid conditions can cause color changes in processed films. Therefore, place such films in mounts or sleeves and store them in a dark, dry, cool and well ventilated location under the following conditions.

- Medium-term storage:  
Below 25°C (77°F) at 30% to 60% RH
- Long-term storage :  
Below 10°C (50°F) at 30% to 50% RH

**NOTE** As with all color dyes, those used in this film will discolor or fade with time.

## 9. PROCESSING

This film is designed for processing by Kodak E-6, Fujifilm Process CR-56, or Fuji/Hunt C6R, etc.

## 10. VIEWING LIGHT SOURCES

Use a standard viewer. Visual responses will differ with light source quality and brightness. Therefore, employ a viewer which meets the ISO/ANSI standards.

\* The ISO standard (ISO/DP3664-2) specifies an illuminated viewer surface with a color temperature derived from a CIE illuminant D<sub>50</sub> (D: Daylight) with a reciprocal color temperature of 5000K, an average brightness of 1400cd/m<sup>2</sup> ± 300cd/m<sup>2</sup>, a brightness uniformity of more than 75%, a light diffusion level of more than 90% and an average color rendition assessment value of more than Ra90. Transparency viewers should meet these standards.

### 11. PRINTS AND DUPLICATES

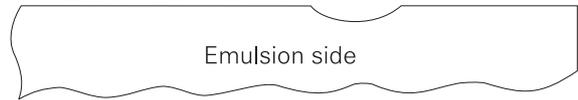
Processed transparencies can be made into prints on FUJICHROME PAPER TYPE 35 or FUJICOLOR INTERNEGATIVE FILM IT-N. Duplicates can be made on FUJICHROME DUPLICATING FILM CDU TYPE II (CDU II).

### 12. RETOUCHING

Changes in density and color balance can be made by using readily available retouching dyes and bleaching chemicals.

### 13. SHEET FILM CODE NOTCHING

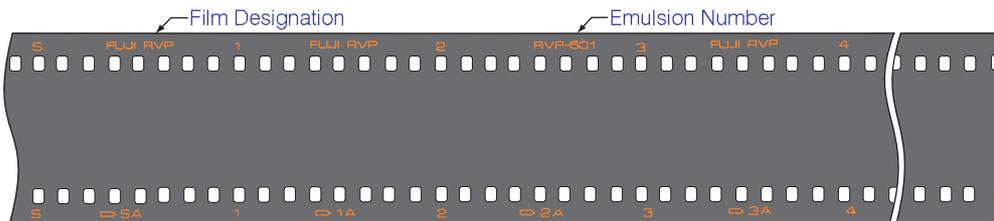
A notch identifying this emulsion type is located in the upper right-hand corner when the emulsion surface is facing toward you. The same notch is provided for QuickLoad type films.



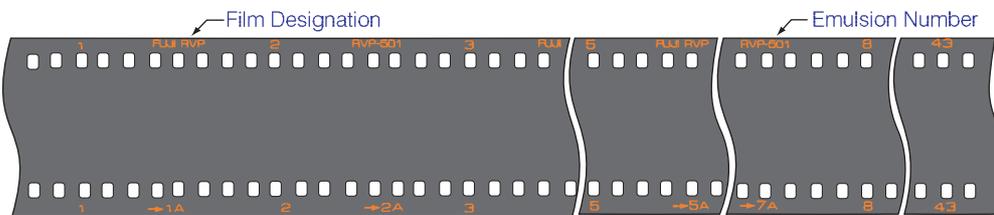
### 14. PROCESSED FILM EDGE MARKINGS\*

<Rolls>

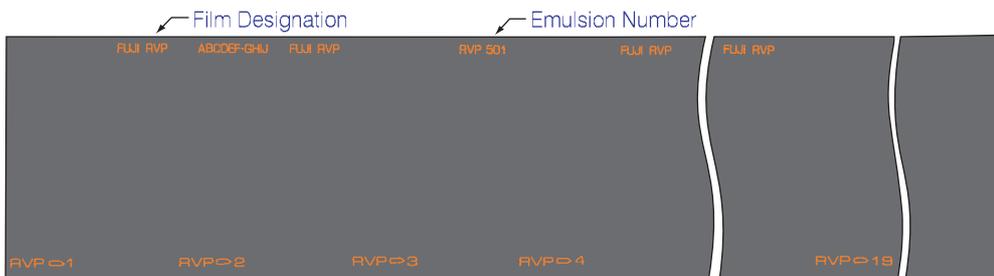
- 135 Size



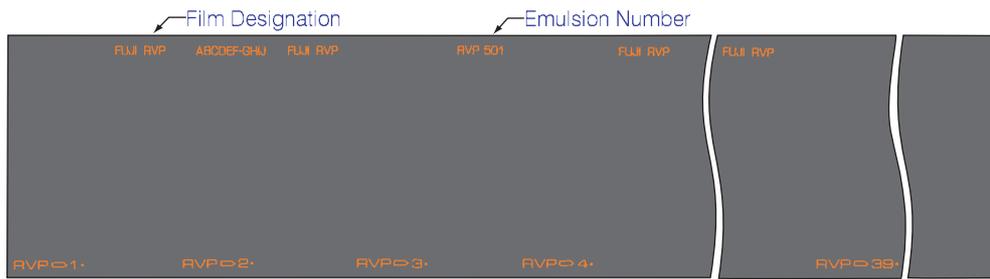
- 35 mm × 30.5 m (100ft)



- 120 Size

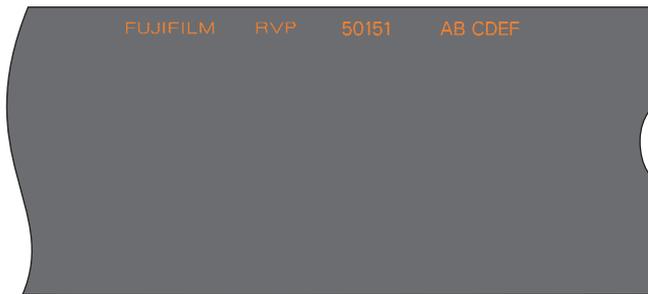


• **220 Size**

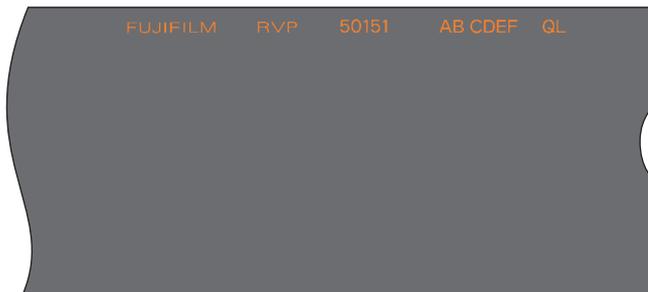


<Sheets>

• **Standard Sheet Film**

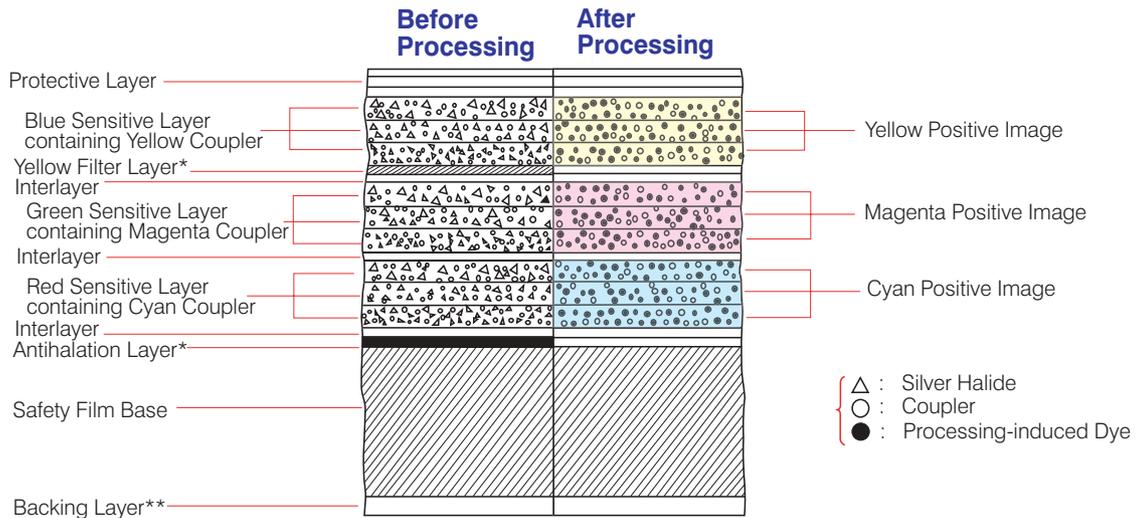


• **QuickLoad**



\* The emulsion is on the opposite side.  
(Base side facing you)

**15. FILM STRUCTURE**



\* These layers become colorless and transparent after processing.  
 \*\* The backing layer is colorless and transparent both before and after processing, but it is not provided with 135 size film.

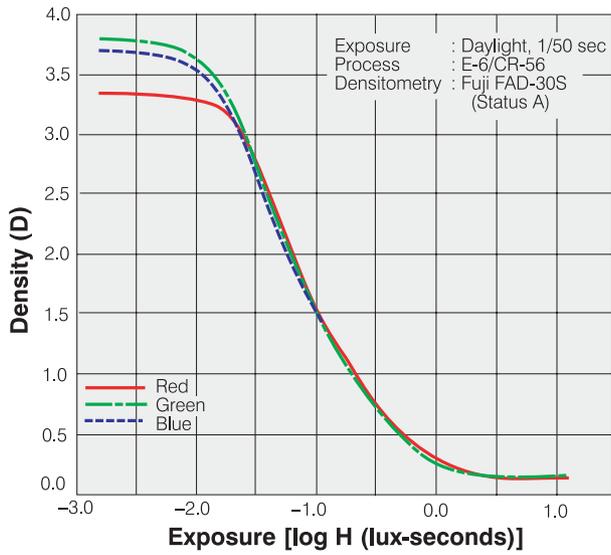
**16. DIFFUSE RMS GRANULARITY VALUE ..... 9**

Micro-densitometer Measurement Aperture: 48 μm in diameter.  
 Sample Density: 1.0 above minimum density.

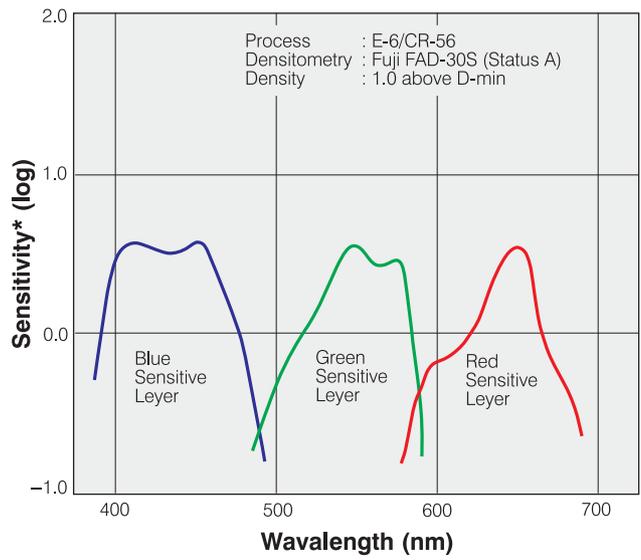
**17. RESOLVING POWER**

Chart Contrast 1.6 : 1 ..... **80** lines/mm  
 Chart Contrast 1000 : 1 ..... **160** lines/mm

18. CHARACTERISTIC CURVES

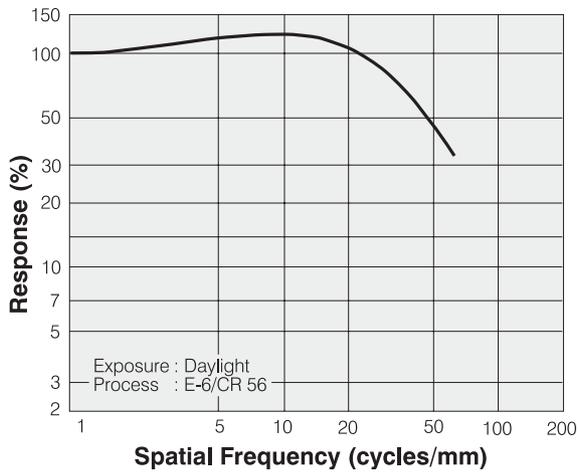


19. SPECTRAL SENSITIVITY CURVES

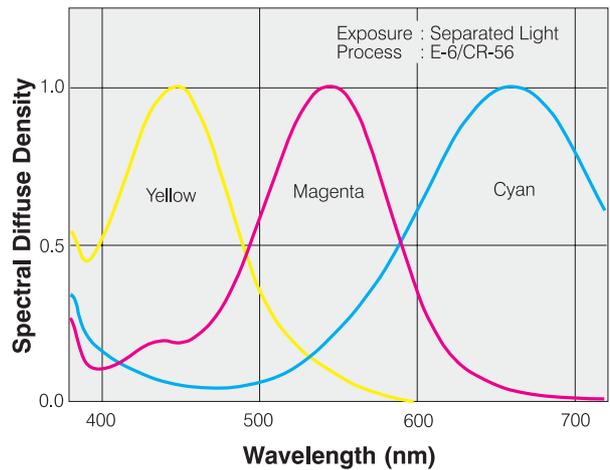


\* Sensitivity equals the reciprocal of the exposure (J/cm<sup>2</sup>) required to produce a specified density.

20. MTF CURVE



21. SPECTRAL DYE DENSITY CURVES



**NOTICE** The data herein published were derived from materials taken from general production runs. However, as Fujifilm is constantly upgrading the quality of its products, changes in specifications may occur without prior notice.