FUJIFILM
AF3-0221E2
PRODUCT INFORMATION BULLETIN
COLOR REVERSAL FILMS

FUJICHROME Velvia 50 Professional [RVP50]

1. FEATURES AND USES

FUJICHROME Velvia 50 Professional [RVP 50] is a professional daylight color reversal film with an ISO speed rating of 50. Nearly identical in performance to FUJICHROME Velvia for Professionals [RVP], this film was made possible through the development of new production technologies and substitutes for raw materials vital for the manufacture of the current Velvia but now hard to procure. In addition to the world's highest level of image color saturation and vibrancy, this film combines superb granularity with resolving power. The result is well-modulated, vivid color reproduction and high picture quality, as required in such wide-ranging subjects as nature photography, fashion, products, interiors and artwork. It is especially suited to subjects that demand precision in reproduction and emphasis in colors.

Features

- **Vibrant Color Reproduction/ Rich Color Tone Depiction** ····· Vivid skin tone reproduction with the world's highest color saturation equal to that of the current Velvia. Superb color tone depiction for rich color reproduction.
- **Fine Grain Quality/ High Definition/ High Resolving Power** ···· Superb grain quality, vibrancy and resolving power, as with the current Velvia.
- **Neutral Grays and Excellent Deep Shadows** ····· Fine neutral gray reproduction from the highlights to the shadows.
- **Superb Push/Pull Processing** ····· Minimum color balance variation over a range from –1/2 to +1 stop to enable wider photo opportunities. Also allows fine adjustments of exposure and density to be easily done during processing.

2. SPEED

Light Source	Speed	Color Balancing Filter
Daylight	ISO 50/18°	None
Tungsten Lamps (3200K)	ISO 16/13° *	No. 80A **

* Indicates the effective speed resulting from designated filter use.
** Wratten Filter

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

Sizes	Emulsion Number	Base Material	Base Thickness
• **Rolls***	#501–		
135 ··· 36-exp.		Cellulose Triacetate	127 μm
··· 36-exp. (20-roll pack)			
120 ··· 12-exp.			98 μm
··· 12-exp. (5-roll pack)			
220 ··· 24-exp. (5-roll pack)			
• **Sheets***			
4×5 in. (10.2×12.7 cm) ··· 10 sheets		Polyester	175 μm
8×10 in. (20.3×25.4 cm) ··· 10 sheets			
QuickLoad 4×5 in ··· 20 sheets			

* Some sizes are not available in certain markets.

4. EXPOSURE GUIDE FOR VARIOUS LIGHT CONDITIONS

Use a meter to determine the exposure setting. 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: 1/125 sec.)

NOTES

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

Daylight

Under usual daylight conditions, color balancing filters are not necessary. For the following exposure conditions, however, the indicated filters are recommended.

- A UV filter No. 2C*, No. 2B* or other appropriate ultraviolet absorbing filter is recommended for scenes that are receiving strong ultraviolet light from the sun, such as seaside locations, snow scenes, and bright distant views.

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

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

* Wratten 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, use duration, 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.

$$\text{Lens Aperture (F-number)} = \frac{\text{Electronic Flash Guide Number (at ISO 50)}}{\text{Electronic Flash-to-Subject Distance}}$$

- Set the film speed at ISO 50. 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 the exposure meter. It is recommended to compensate for the difference by increasing the exposure time by lowering the shutter speed or by increasing the lens opening. Whenever possible, test exposures are recommended.
- Other factors that should be considered when determining the exposure settings are lamp configuration, length of time used 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
Exposure Corrections**	+1 2/3 stop	+1 2/3 stop	+1 1/2 stop	+2 stops

(Exposure time: 1/4 sec.)

* Wratten Color Compensating (CC) Filters are recommended. NOTE: No. 80C is a Wratten Color Conversion Filter.
** Exposure correction values when using a filter relative to unfiltered exposure results. 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 law failure.

Tungsten Lamps

- A Wratten Filter No.80A 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 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 law 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 recommend
Exposure Corrections*		+1/3 stop	+1/2 stop	+2/3 stop	+1 stop	

* Exposure correction values when using a filter relative to unfiltered exposure results. A "+" followed by a number indicates the required increase in the lens opening.

NOTE

The above figures are based on the use of standard processing for films with average emulsions. These figures should therefore be used as a rough guide only. For more accurate results, it is recommended that test exposures be made under the actual shooting conditions.

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6. EXPOSURE PRECAUTIONS

With artificial light, such as electronic flash, photoflood, fluorescent, tungsten, high intensity discharge lamp (metal halide, sodium, 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. UNPROCESSED FILM HANDLING/STORAGE

HANDLING

- Expose film before the expiration date indicated on the film package and process as soon as possible after exposure.
- Roll film should be loaded and unloaded quickly and away from direct sunlight.
- Film loaded in cameras should be exposed and processed promptly.
- Sheet film must be handled in total darkness and with care so as not to touch the emulsion surface.
- X-rays inspection machines used to inspect checked-in baggage at airports can cause fogging of film. Put both exposed and unexposed film into carry-on baggage (preferably in a transparent plastic bag or a net bag that allows the film to be seen). Because of the increasing number of airports using strong X-ray machines for carry-on baggage, it is recommended that you remove film from your carry-on baggage and request a visual (manual) inspection of your film.
- Film fogging may occur near X-ray equipment used in hospitals, factories, laboratories and other places where radiation is used. Always keep film away from sources of radiation.

STORAGE

Storing exposed or unexposed film under hot and humid conditions may adversely affect the speed, color balance and physical properties of the film. Although it is best to store film at a low temperature, for practical purposes, film should be stored as follows:

Short-term Storage	Store at 59°F(15°C) or below (Refrigerator)
Long-term Storage	Store at 32°F(0°C) or below (Freezer)

- New building materials, newly manufactured furniture, paints and bonding agents may produce gases which could affect photographic film. Do not store film, lightproof boxes containing film or cameras or film holders loaded with film near these materials.
- Film should be sealed in plastic bags* prior to cold storage. When taken out of cold storage, film should be allowed to reach room temperature before opening by letting it stand over 3 hours (for refrigerated film) or over 6 hours (for frozen film). Opening film while it is still cold may cause condensation to form on the film surface, causing color changes or the emulsion to become more susceptible to scratches.

  * Polyester, polystyrene, polyethylene, polypropylene, etc.

8. PROCESSING

This film is designed for processing by Process E-6, Fujifilm Process CR-56, or Fuji Hunt's PR06, etc.

9. PROCESSED FILM HANDLING/STORAGE

Since the purpose of film is to provide a long-term record of memorable events, as much effort as possible has been made to use materials that exhibit the least amount of change over time, but the effects of light, heat, atmospheric oxygen, contaminant gases, humidity and mold cannot be completely avoided. It is possible, however, to minimize change in the photographic image or base material by maintaining appropriate storage conditions, such as those used by museums and art galleries. Temperature and humidity control is the most important key to minimizing the change that occurs in film. Processed film stored in the dark under the following conditions may be expected to show almost no change over time.

Storage Period with Almost No Change	Temperature	Relative Humidity
More than 20 years	Below 50°F(10°C)	30% – 50%
10 – 20 years	Below 77°F(25°C)	30% – 50%

(1) Color reversal film should be mounted inserted into sleeves* for storage.

  * Polyester, polystyrene, polyethylene, polypropylene, etc.

(2) Processed film should be stored at a place as far away as possible from high temperatures, direct sunlight and other strong light. The following conditions are not desirable for the storage of film and should be avoided in the case of long-term storage:

- Storage in a closet lying against a wall that is exposed to cold, outside air (where condensation may form).
- Storage in an attic or on top of a closet or cabinet near the ceiling (where high temperatures may occur).

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10. LIGHT SOURCES FOR VIEWING

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

* The ISO standard (ISO 3664:2000) specifies an illuminated viewer surface with a color temperature derived from a CIE illuminant D50 (D:Daylight) with a reciprocal color temperature of 5000K, an average brightness of 1270cd/m^2 ± 320cd/m^2, 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.

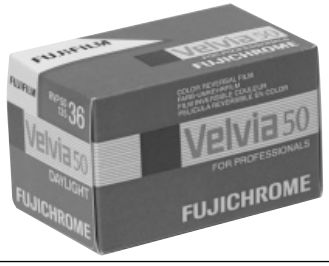
11. PRINTS AND DUPLICATES

This film can produce high-quality prints when used with digital printers such as the Fuji Digital Minilab Frontier. High-quality duplicates can be made on FUJICHROME DUPLICATING FILM CDU TYPE II (CDU II).

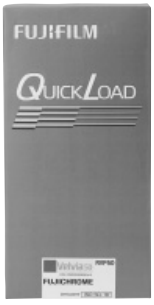
12. RETOUCHING AND BLEACHING

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

13. PACKAGING

Size	Item	Contents
135	Film Box	New Exclusive Design Identification Color: Gold, Blue 
	Plastic Case	Same as the current product (Tranparent container with a black cap).
	Cartridge	New Exclusive Design Identification Color: Gold, Blue 
120	Film Box	New Exclusive Design Identification Color: Gold, Blue   5 roll pack
	Envelope	

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Size	Item	Contents
120	Backing Paper and Seal	Backing paper: FUJICHROME Exclusive Design Seal: Exclusive Design 
220	Film Box	New Exclusive Design Identification Color: Gold, Blue  5 roll pack
	Envelope	
	Backing Paper and Seal	Backing paper: FUJICHROME Exclusive Design Seal: Exclusive Design 
Sheet	Film Box, Label and Seal	New Exclusive Design Identification Color: Gold, Blue 

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14. SHEET FILM CODE NOTCHING

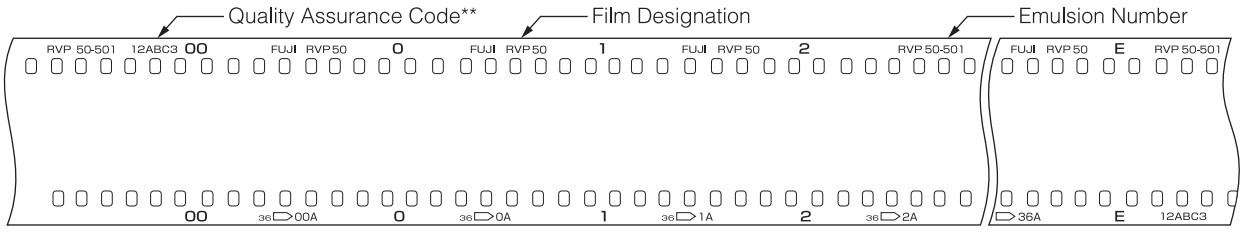
A notch code identifying this emulsion type is located in the upper right-hand corner when the emulsion surface is facing toward you. The same notch is provided for QuickLoad type films.



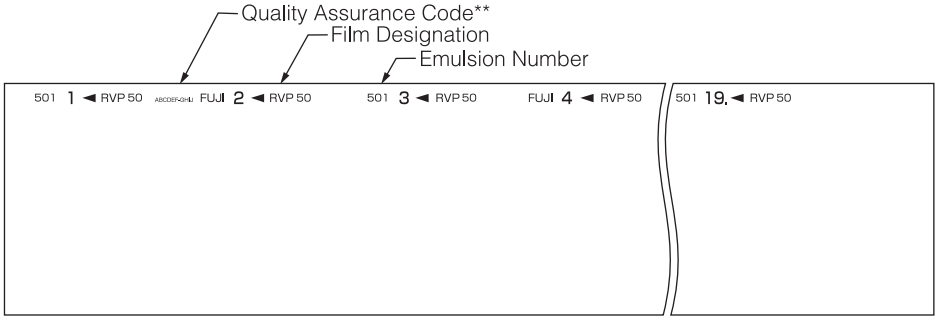
15. PROCESSED FILM EDGE MARKINGS*

<Rolls>

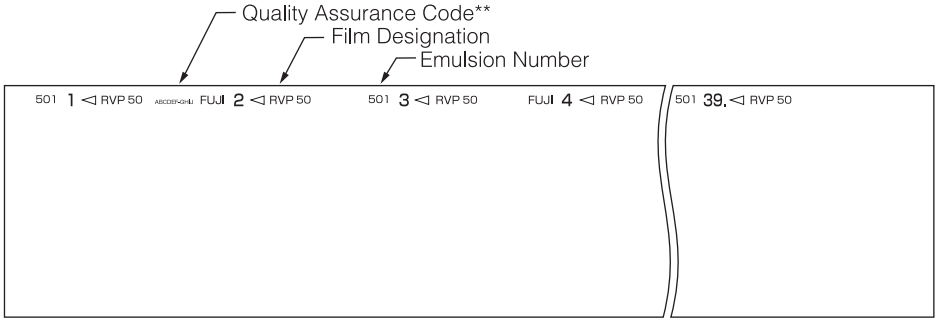
• 135 Size



• 120 Size



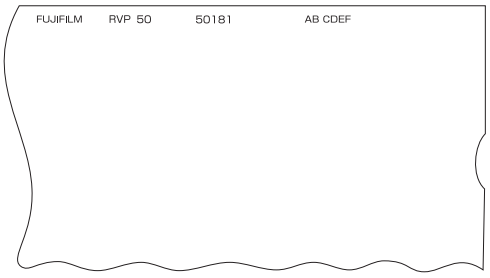
• 220 Size



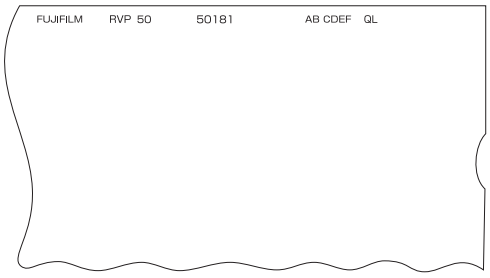
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<Sheets>

• Standard Sheet Film



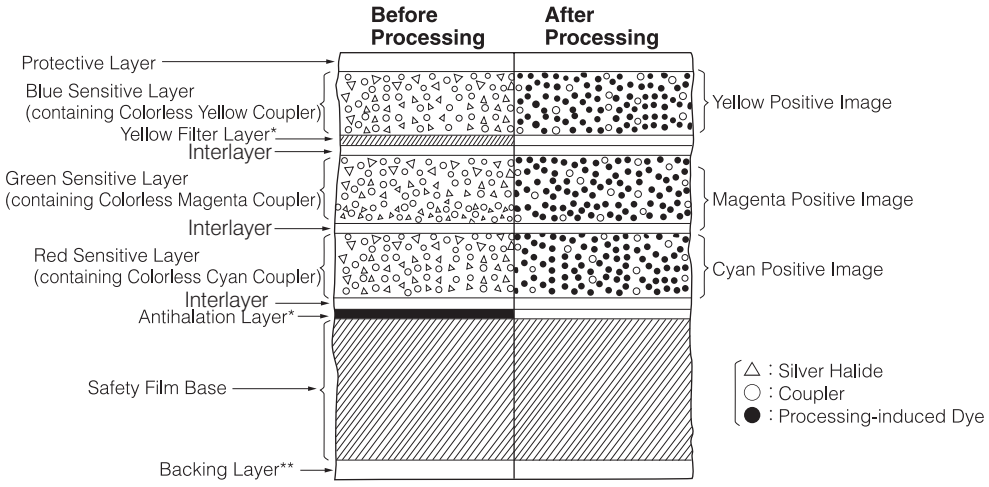
• QuickLoad



NOTES

* The emulsion is on the opposite side. (Base side facing you)
** This code represents an identification marking enabling Fujufilm's manufacturing quality control system to assure individual quality.

16. FILM STRUCTURE



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

17. DIFFUSE RMS GRANULARITY VALUE 9

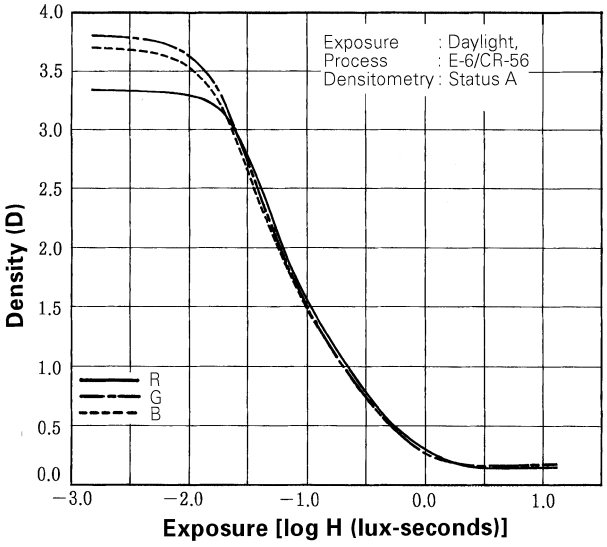
Micro-densitometer Measurement Aperture: 48 μm in diameter.
Sample Density: 1.0 above minimum density.

18. RESOLVING POWER

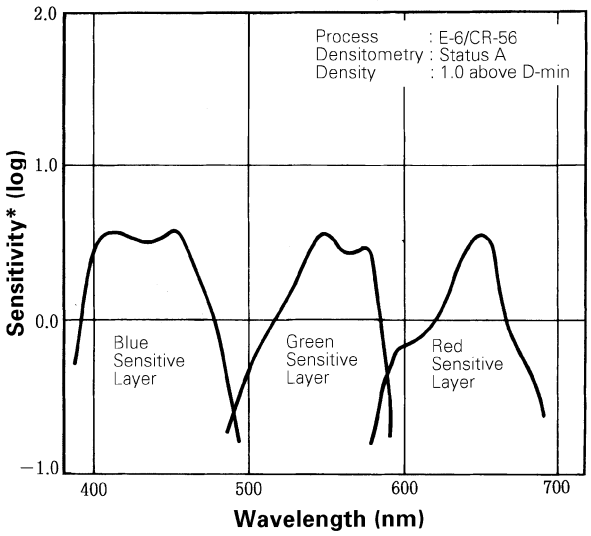
Chart Contrast 1.6 :1 .....**80** lines/mm
Chart Contrast 1000 :1 .....**160** lines/mm

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19. CHARACTERISTIC CURVES

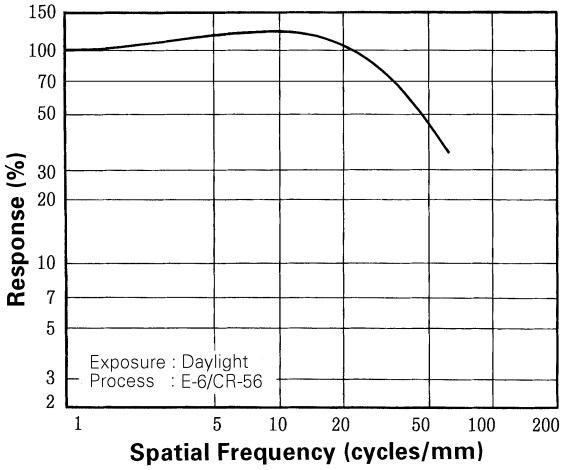


20. SPECTRAL SENSITIVITY CURVES

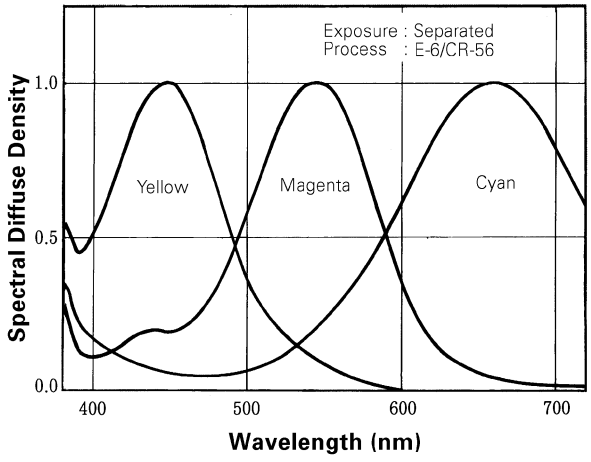


* Sensitivity equals the reciprocal of the exposure (J/cm^2) required to produce a specified density.

21. MTF CURVE



22. SPECTRAL DYE DENSITY CURVES



NOTICE The data herein published were derived from materials taken from general production runs. However, changes in specifications may occur without prior notice.

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Ref. No. **AF3-0221E2** (KAMIQ-07.3-FP) Printed in Japan