


FUJIFILM

PRODUCT INFORMATION BULLETIN

Color negative paper

Fujicolor Crystal Archive Paper

1. Features and uses

FUJICOLOR CRYSTAL ARCHIVE PAPER is a silver halide color paper designed to produce high-image quality color prints on both analog and digital printers. This paper incorporates new silver halide emulsion technology, coupler technology and layer design technology to deliver enhanced color reproduction, white purity, image stability and handling. Furthermore, when used in conjunction with the Frontier 5**/7**, it enables the realization of superfast processing, resulting in a drastic improvement of productivity.

Features

More Vivid Color Reproduction	Retains beautiful colors such as subtle shades of green, vivid blues and reds
• More Brilliant White plus Improved Highlight Details	Further improved whiteness, with clearer, more distinct highlight details.
• Excellent Image Stability•	Exhibits high image stability during high long-term dark storage and excellent light storage condition, as well as storability with respect to nitrogen oxide, ozone and other gases.
• Improved Handling Characteristic	Improved tolerance for processing unevenness and pressure-induced density variations that sometimes occur
• High productivity	Realizes high productivity when used in conjunction with Frontier 5**/7**

2. Safelight

Handle in total darkness. If safelight use is unavoidable, observe the following precautions.

- Expose paper no longer than 1 minute to light emitted through two Fuji Safelight Filter No. 103A (or Wratten Safelight Filter No. 13) in a 10-watt tungsten lamp safelight located at least 1 meter from the work area.
- Safelight filters fade with extended use and need regular checking. Replace when paper fogging is detected.
- Exposed paper is susceptible to safelight-induced sensitivity increases in the exposed area. For this reason, exposed paper should be subjected as little as possible to safelight illumination.

3. Pre-processing paper handling / storage

The higher the temperature and humidity, the more paper, whether unused, unexposed or exposed, is susceptible to adverse changes in speed, color balance, physical characteristics and other properties. Unprocessed paper is best stored at low temperatures. Specifically, the following conditions should be used for paper storage.

- Short-term storage: Store in a cool and dark location, away from direct sunlight, high temperature and high humidity
- Long-term storage: Below 10°C (50°F)

Raw paper which has been stored at a low temperature (by refrigeration) should be set aside and allowed to warm to room temperature prior to being opened. If the paper is taken out of its packaging immediately after being removed from refrigerated storage, condensation will form on the paper surfaces, resulting in print color changes and easily damaged surfaces.

The shortest periods required to return freezer- or refrigerator-stored paper to room temperature (minimum temperature equalization periods) are as follows.

20°C(68°F)Temperature Equalization Periods

Unit: hours

Storage Temperature Paper Size	-20°C (-4°F)	0°C (32°F)	10°C (50°F)
10.2cm*186 m (4 in. x 610 ft.)	6	5	3.5

NOTES

- Do not heat paper in order to equalize temperatures.
- Remove paper from refrigeration one day before use.

If exposed paper remains unprocessed for extended periods of time under normal room conditions or is subjected to high temperature and/or high humidity, changes in the color balance and other properties may occur.

The time between exposure and development should be fixed in order to obtain consistent quality. Avoid waiting until the next day to develop the exposed paper. Rather than holding the paper for processing the next day, initiate processing as soon as possible.

4. Processing

This paper is designed for use with Fujicolor Paper Process, CP48S and CP49E or RA-4 type processes. Combining this paper with Fuji chemicals results in many advantages including faster processing, greater processing stability, reduced contamination hazards, greater ease in solution preparation and higher print quality.

5. Control strips

Processing control can be provided through the use of FUJICOLOR CRYSTAL ARCHIVE PAPER Control Strips Process CP-40FA/43FA/47L/48S/49E.

6. Post-processing print handling / storage

Since prints are usually used for the long-term recording of images, as much effort as possible is made to use materials that exhibit the least amount of change overtime. But the effects of high force during folding, light, heat, oxygen in the air, contaminating gases, humidity and mold cannot be completely avoided. It is advised to use low forces during assembling the album. Also the change in the photographic image or base material are minimized by maintaining the appropriate storage conditions for prints, 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 prints. Prints stored in the dark under the following conditions may be expected to show almost no changeover time.

Storage period with almost no change	Temperature	Relative Humidity
More than 20 years	Below 10°C (50°F)	30% — 50%
10 — 20 years	Below 25°C (77°F)	30% — 50%

Notes on Prints Storage

- Prints should be inserted into albums, mounted, or placed into a bag (plastic*) for photographic prints before being stored.

*Made of polyester, polystyrene or polypropylene plastic, etc

- Even during normal storage, it is recommended that prints be stored at a place as free as possible from hot and humid conditions, and away from direct illumination. The following are examples of undesirable storage conditions.

- Storage in a room closet facing a wall exposed to cold outside air (which may cause condensation).
- Storage in a place near the ceiling, such as an attic, the top of a closet or cupboard (where high temperatures may occur).

- Storing prints with their front surfaces facing each other may result in unexpected problems. If the adjacent print placement is unavoidable, it is necessary to keep the surface separated by, for example, the use of interleaving sheets of paper.

7. Light sources for viewing

When inspecting finished color prints, it is essential that an illumination source will be used that has superior spectral characteristics, adequately high color temperature and sufficient brightness. This is because results can appear different, depending on light quality. For precise results, prints should be examined under the conditions designated by ISO 3664-2000. As a general guide, the following conditions are recommended.

Color Temperature : 5000±300 K
Average Illumination : 500 Lux or more
General Color Rendering Index : Ra 90 or more*

* To attain these values, special fluorescent lamps designed for color evaluation (e.g. EDL type) should be used.

When inspecting finished prints, be careful to shut out all external light and colored reflected light.

8. Paper surface available

Fujicolor Crystal Archive is available in Glossy, Lustre and Matte surface.

9. Use with FA/FA compact

Since cyan forming dye has been modified in CRYSTAL ARCHIVE PAPER, a problem may arise when this paper is used on the printing condition settings made using the densitometer QT-600 built into Fuji Minilab FA/FA compact series. When CRYSTAL ARCHIVE PAPER is used with Fuji Minilab FA/FA compact series of minilabs, it is necessary to set the printing conditions using the "ring-around print" method or another densitometer.

10. Markings (Box/Emulsion numbers)

10.1 Box markings



"+" indication means that at least 1 spliced babyroll is packed and or a different production control roll number having same photographic properties.

10.2 Bag labelling



"+" indication means that a splice is present in the babyroll.

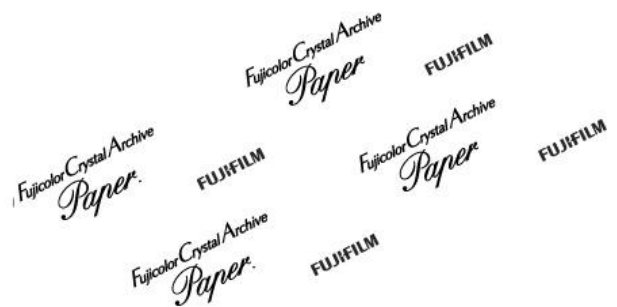
For splicing ISO standards are defined in the following document:
 ISO standard 1009 2009 paper dimensions.pdf

10.3 Emulsion numbers

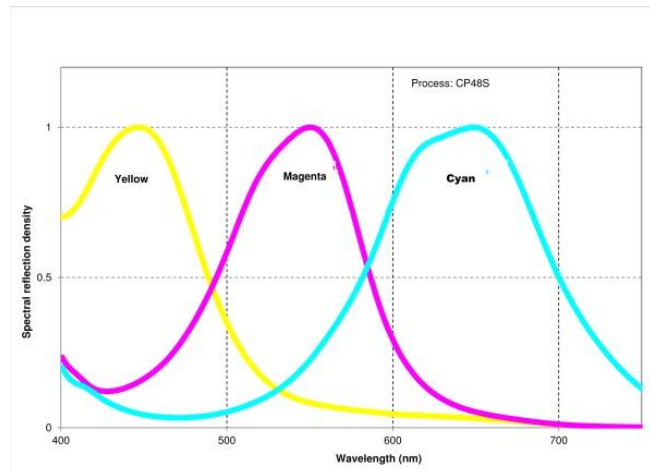
Emulsion numbering will be in ascending order from 001 (with backprint) or 101 (without backprint) at introduction.

Note: FUJICOLOR paper is marked with a three-digit emulsion number followed by an additional three digit number which is provided for production control purpose only. Should any problem arise with FUJICOLOR CRYSTAL ARCHIVE PAPER, the additional three digit number suffix to the emulsion number should be indicated on the claim.

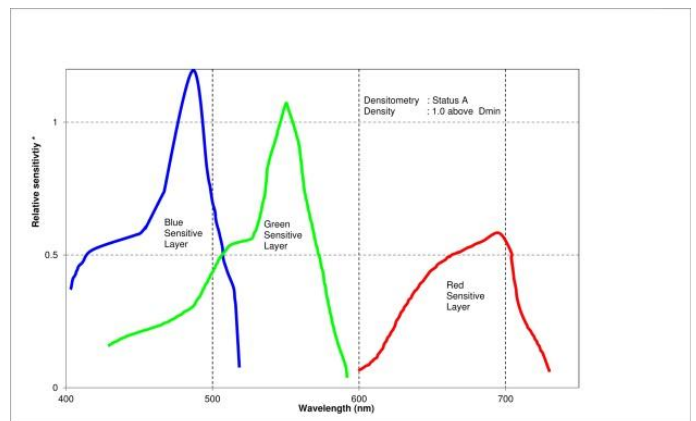
11. Back printing



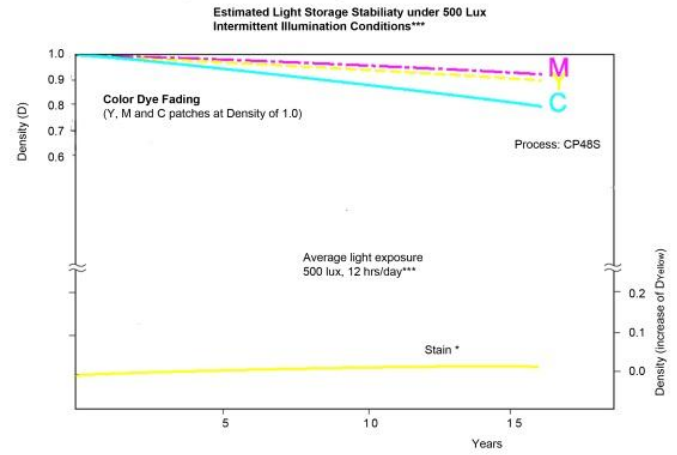
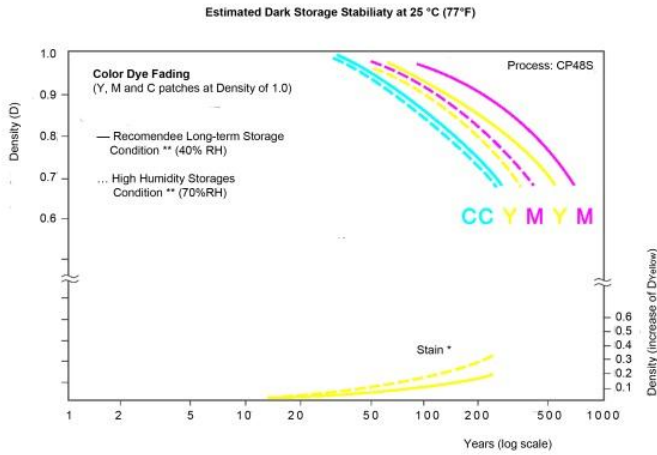
12. Spectral dye density curves



13. Spectral sensitivity curves

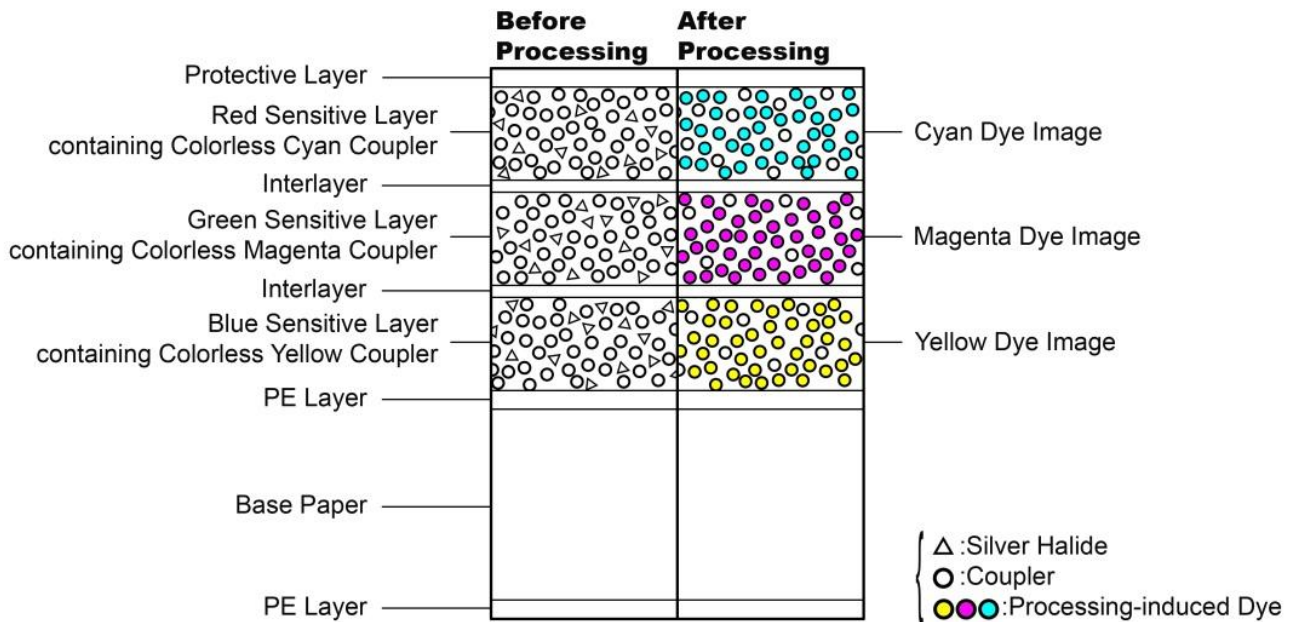


14. Image storage characteristics



- * Time-induced white background staining (yellowing) is as important as dye image fading in affecting image quality.
- ** In regard to color image dark storage stability, the level of humidity is just as important as temperature. For this reason, more accurate evaluations can be made by using the two humidity standards – one for high humidity storage conditions (70%RH) and one recommended for long-term storage (40%RH).
- *** Since in common domestic situations sunlit areas may be bright as 1,000 lux or more during the day and drop to 300 lux in the evening and at night, storage conditions are usually designated to be at an average of 500 lux of light exposure for 12 hours per day.

15. Paper structure



16. Sizes available

Length \ Width	Box packaging			BULK packaging		
	50 m (164 ft)	90 m (295 ft)	186 m (610 ft)	305 m (1000 ft)	450 m (1476 ft)	500 m (1640 ft)
8.9 cm (3.5 in.)			■			■
10.2 cm (4 in.)		■	■			■
11.4 cm (4.5 in.)					■	
11.7 cm (4.6 in.)			■			
12.7 cm (5 in.)		■	■		■	
15.2 cm (6 in.)		■	■	■		
17.8 cm (7 in.)		■	■		■	
20.3 cm (8 in.)		■	■			
21.0 cm (8.3 in.)		■				
24.0 cm (9.4 in.)		■				
25.4 cm (10 in.)		■	■			
30.5 cm (12 in.)		■	■			
40.6 cm (16 in.)		■				
50.8 cm (20 in.)		■				
60.3 cm (23.7 in.)	■					
76.2 cm (30 in.)	■					
106.0 cm(41.7 in.)	■					
127.0 cm (50 in.)	■					

Note: Size availability may change without prior notice.
Availability depends on surface.

17. Calibration data

Equipment		Software	Calibration data				
Brand	Name		LUT + Target density RGB		Basic calibration ymcd	Intermittance rgb	Thickness
			Glossy / Lustre	Matte			
Frontier	3xx	Installer R	LUT C + surface selection		n.a	n.a	n.a
	5xx	Installer R	LUT C + surface selection				
	7xx	N3.12	LUT C-1	LUT C-2			
Noritsu	QSS 28x ~ LP24Pro	Vol.713	117		n.a.	n.a.	n.a.
	35xx, 37xx	N3.12	117				
Agfa	DLab 1, 2, 3		2.00 / 2.00 / 1.95	1.95 / 1.95 / 1.90	0.97 / 1.00 / 1.02		
KIS	DKS 15x, 16x, 17x		Printer defines own and highest possible Dmax settings (exposure vs chemistry relation)				
ISAG	Fastprint		2.00 / 2.00 / 1.95	1.95 / 1.95 / 1.90	n.a.	n.a.	0.22
	Wideprint 8", 12"				n.a.	n.a.	n.a.
	Wideprint R2R		117		n.a.	n.a.	n.a.
ZBE Chromira	SE, Pro, R2R		2.00 / 2.00 / 1.95	1.95 / 1.95 / 1.90	n.a.	n.a.	n.a.
Polielettronica	Laserlab 50/76/127		Printer defines own and highest possible Dmax settings (exposure vs chemistry relation)				
Durst	Epsilon				0.004 / 0.056 / 0.000 / 0.920	90 / 50 / 37	n.a.
	Zeta						
	Theta 50/51		2.00 / 2.00 / 1.95	1.95 / 1.95 / 1.90	170.2 / 112.0 / 0.0 / 104.3		
	Theta 76/76HS				0.006 / 0.085 / 0.000 / 1.325	101 / 56 / 42	
	Lambda				124.0 / 95.8 / 0.0 / 129.0		
OCE Lightjet	430 / 500XL / 5000		Media target can be downloaded from the Fujifilm Europe.eu website				

All recommended Dmax values can only be reached when using high active chemistry equal to Fujifilm CPRA Digital Pro AC and Fujifilm ADM chemistry
For competitive and recycling chemistry the Dmax should be reduced with -0.10 density

* Media target location: http://products.fujifilm.eu/support/color_management/photographic/oce.html

* Profiles location : http://products.fujifilm.eu/support/color_management/photographic/

18. Use with Frontier

Registration and Setup of the Paper Type specification on Paper Magazine for Frontier 330/350/370/390 series

1. Log in to the "4 Setup and Maintenance" menu with user name "SE2" and password "7777".
2. Select "5 Printer Adjustment/Maintenance" – 1 "Paper Magazine Registration" (Menu 451) and change the type to "C" as shown in the table below.

Paper	Type
Crystal Archive Paper	C

3. Select "2 Print Condition Setup and Check" – 1 Paper condition Setup" (menu 421) and perform a paper condition setup for all magazines for which the paper types are changed.

- When using AD100:
Do not click the "initialize" button. Start calibrating the paper using the Print button.

- When using AD200:
It is advised to click the "initialize" button to initialize the settings before making the paper condition setup. After initialization the first paper condition setups will deviate by a great degree, but this will be balanced after the second or third attempt. (Please note that clicking the "initialize" button will not be possible if you do not log in with a user name of lab administrator or higher).

Registration and Setup of the Paper Type specification on Paper Magazine for Frontier 340/355/375/500/550/570/590 series

1. Log in to the Setup and Maintenance menu with password "7777".
2. Select the <Adjustment/Maintenance>- <02 Print Condition Setup and Check>- <0221 Paper Magazine Registration>. Change the paper type to "C" as shown in the table below.

Paper	Type
Crystal Archive Paper	C

3. Click the <Setup and Maintenance> - <02 Print condition Setup and Check> - <0200 Paper Condition Setup> and perform a paper condition setup for all magazines for which the paper types are changed.

It is important to click the "initialize" button to initialize the settings before making the paper condition setup. After initialization the first paper condition setups will deviate by a great degree, but this will be balanced after the second or third attempt. (Please note that clicking the "initialize" button will not be possible if you do not log in with a user name of lab administrator or higher).

Registration and Setup of the Paper Type specification on Paper Magazine for Frontier 700 series

1. On the Maintenance Application display, click [Maintenance] to access the Maintenance display. Click [Extension] – [Setup] – [Laser Setup] – [Paper Specification Registration / Setup]
2. Select the paper type "C-1" or "C-2" as shown in table below:

Paper	Type	Surface
Crystal Archive Paper	C-1	G/L
Crystal Archive Paper	C-2	M

Follow the instructions on the Paper Specification registration/set up. Make the test prints and register the measurement results.

19. Technical Support

In case abnormalities are found when using this FUJICOLOR CRYSTAL ARCHIVE PAPER please contact your local Fujifilm subsidiary and/or distributor.

Relevant Fujifilm subsidiary and/or distributor contact information can be found on the following internet address:

<http://www.fujifilm.com/worldwide/>

Notice: The data herein published were derived from materials taken from general production runs. However changes in specification may occur without notice

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