

# Product Information Bulletin

## Fujicolor Crystal Archive Album Paper



### 1. Features and uses

FUJICOLOR CRYSTAL ARCHIVE ALBUM PAPER is a silver halide color paper designed to produce high image quality prints.

The base of FUJICOLOR CRYSTAL ARCHIVE ALBUM PAPER is specially designed for mounting it to double sided photo pages. Like FUJICOLOR CRYSTAL ARCHIVE PAPER, this new paper incorporates silver halide emulsion, coupler and layer design technology to deliver enhanced color reproduction, white purity, image stability and handling.

#### Features

- **Optimal designed thickness properties** Resulting in easy to handle photo album pages after prints have been assembled and mounted.
- **Purer Whiteness** Clearer, more distinct highlight details.
- **Vibrant Color** Retains beautiful colors such as subtle shades of green, vivid blues and reds.
- **Reproduction**
- **Excellent Image Stability** Exhibits high image stability during extended long term dark storage conditions as well as excellent storability with respect to nitrogen oxide, ozone, and other gases.

### 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 be formed on the paper surfaces, resulting in print color changes and easily damaged surfaces.

The minimum temperature equalization periods are as follows.

#### 20°C (68°F) Temperature Equalization Periods

Unit: hours

Paper Size	Storage Temperature	-20°C	0°C	10°C
		(-4°F)	(32°F)	(50°F)
10.2cm x 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 and 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 over time. 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 change over 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 Photo Album Storage:

When prints have been assembled and mounted, it is recommended that the album be stored at a place as free as possible from hot and humid conditions, and away from direct strong light. The following are examples of undesirable storage conditions.

- Storage of the album at a temperature higher than 50°C and/or relative humidity higher than 70%.
- Storage in a closet that is adjacent to an exterior wall could lead to extreme cold temperatures and condensation.
- Storage in a place near the ceiling, such as an attic, the top of a closet or cupboard (where high temperatures may occur).

### 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 3664-2009. 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 ALBUM PAPER is available in Lustre surface.

### 9. Back printing

This product has no back printing.

## 10. Markings (Box/Emulsion numbers)

### 10.1 Box markings



"+" indication: spliced baby roll is/are packed.

### 10.2 Bag labelling



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

### 10.3 Emulsion numbers

Emulsion numbering will be in ascending order from Cyx-xxx 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 ALBUM PAPER, the additional three digit number suffix to the emulsion number should be indicated on the claim.

## 11. Technologies incorporated in this paper

### 11.1 Base paper technology

Specially designed base paper having unique characteristics is used for this product. Optimized paper thickness will result in improved leafing through of photo albums with double sided pages.

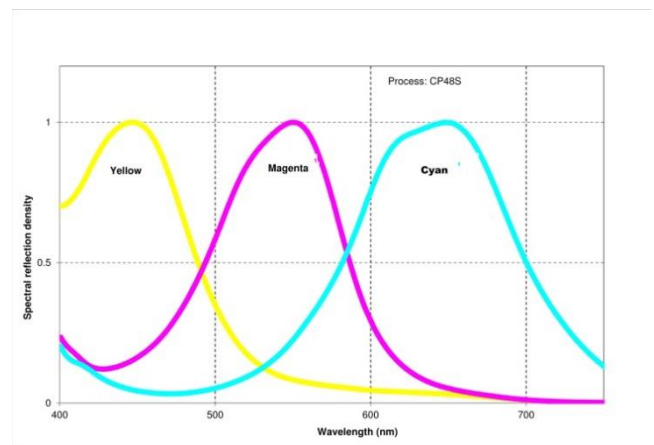
### 11.2 X-Coupler Technology

Through the incorporation of a latest designed cyan coupler (X-Coupler Technology), which features a molecular structure using Fujifilm's proprietary technologies, this paper is capable of reproducing colors of high purity, such as vibrant blues and reproducing the subtle shades of green and of forming reds.

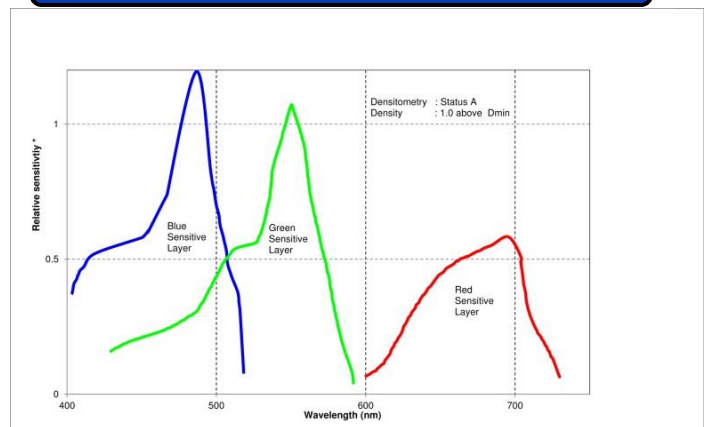
### 11.3 NLS (New Low Stain Spectral Sensitizer) Technology and ARR (Advanced Resistance-to-Radiation) Technology.

FUJICOLOR CRYSTAL ARCHIVE ALBUM PAPER has not only WE (White Enhancing) Technology but also incorporated NLS Technology, which is Fujifilm's LSS Technology taken to a higher level. The results are more brilliant, purer whites and clearer and more distinct highlights. In addition, ARR Technology, an advance over the previous RR Technology, has been incorporated to suppress color paper fogging caused by ambient radiation, enhancing the maintenance of white purity in unexposed color paper.

## 12. Spectral dye density curves

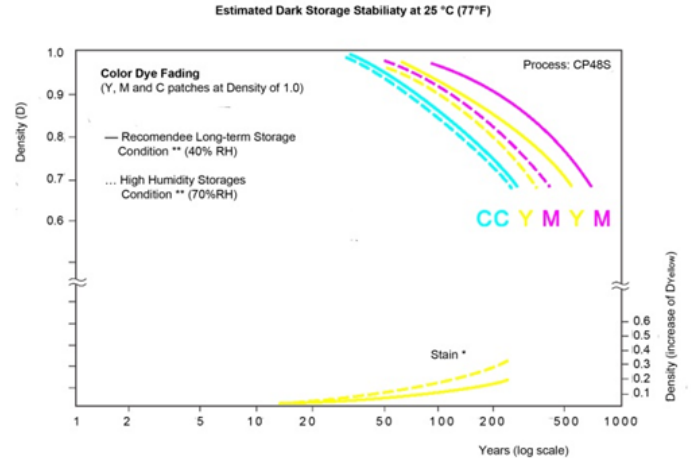
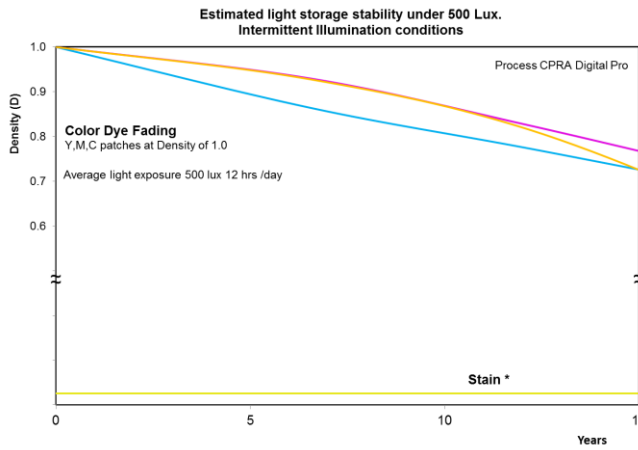


## 13. Spectral sensitivity curves



\* Sensitivity equals the reciprocal of the exposure ( $\mu\text{cm}^2$ ) requires to produce a specified density

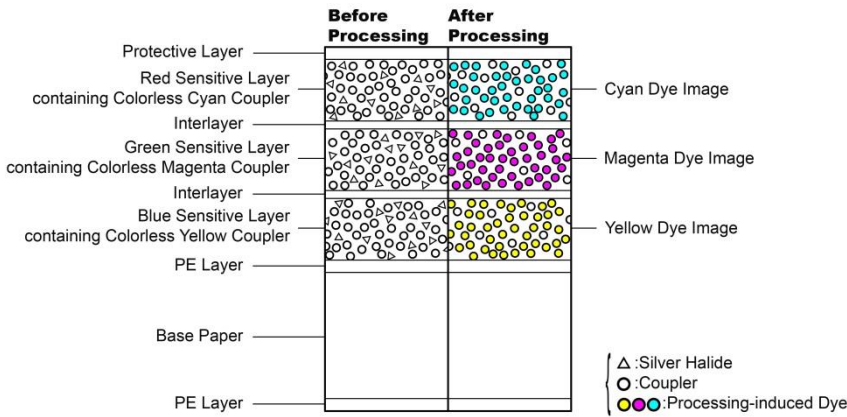
## 14. Image storage characteristics



\* 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 that recommended for long-term storage (40%RH).

## 15. Paper structure



## 16. Sizes available

Length \ Width	Box packaging			BULK packaging		
	70 m (230 ft)	120 m (394 ft)	240 m (787 ft)	250 m (820 ft)	550 m (1804 ft)	600 m (1968 ft)
10.2 cm (4 in.)						■
12.7 cm (5 in.)			■		■	
15.2 cm (6 in.)			■			
17.8 cm (7 in.)				■		
20.3 cm (8 in.)			■	■		
22.0 cm (8.6 in.)			■	■		
25.4 cm (10 in.)			■			
30.5 cm (12 in.)			■	■		
40.6 cm (16 in.)		■				
50.8 cm (20 in.)		■				
76.2 cm (30 in.)	■					

## 17. Calibration data

### Fuji Crystal Archive Album paper

Equipment		Latest Software	Calibration data				
Brand	Name		LUT + Target density RGB	Basic calibration ymcd	Intermittance rgb	Thickness	
Frontier	3 series	Installer R	LUT C + Lustre **	n.a.	n.a.	n.a.	
	5 series	Installer R	LUT C + Lustre **				
	7 series	V 4.01	LUT C-1 **				
Noritsu	QSS 28x ~ LP24Pro	Vol.2 7.20	175	n.a.	n.a.	n.a.	
	35xx, 37xx	Vol.3 N4.54					
Agfa	DLab 1, 2, 3		2.05 / 2.05/ 2.00	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		2.05 / 2.05/ 2.00	n.a.	n.a.	0.17	
	Wideprint 8", 12"		175			n.a.	n.a.
	Wideprint R2R						
ZBE Chromira	SE, Pro, R2R		2.05 / 2.05/ 2.00	n.a.	n.a.	n.a.	
Polieletronica	Laserlab 50/76/127		Printer defines own and highest possible Dmax settings (exposure vs chemistry relation)				
Durst	Epsilon		2.05 / 2.05/ 2.00	0.004 / 0.056 / 0.000 / 0.920	90 / 50 / 37	n.a.	
	Zeta						
	Theta 50/51			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				
** Album paper is thinner than all other photo papers. Under some environmental condition (Temp. / Humidity) and depending on printer maintenance a proper transport cannot be guaranteed in the printing and processing part. Please ask your local distributor for details available in Technical Information TI08.01. 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 and ICC Profile location: <a href="https://www.fujifilm.eu/eu/support/photofinishing/color-management">https://www.fujifilm.eu/eu/support/photofinishing/color-management</a>							

## 18. Use with Frontier

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

- Log in to the < 4 Setup and Maintenance > menu with user name < SE2 > and password < 7777 >.
- 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 Album Paper	C

- 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 recommended 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

- Log in to the < Setup and Maintenance > menu with password < 7777 >.
- 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 Album Paper	C

- Click the < Setup and Maintenance > - < 02 Printcondition 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 ” as shown in table below:

Paper	Type	Surface
Crystal Archive Album Paper	C-1	L

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 ALBUM 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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