

# Product Information Bulletin

Fujicolor Crystal Archive

## Professional Paper Super Type CN



### 1. Features and uses

FUJICOLOR CRYSTAL ARCHIVE DIGITAL PAPER SUPER TYPE CN is a silver halide color paper designed exclusively for digital output. When used in conjunction with medium or large scale digital printer systems or the FUJIFILM FRONTIER DIGITAL MINILAB, this paper yields high image quality digital prints that make it suitable for professional and commercial display uses.

#### Features

- |                                    |  |
|------------------------------------|--|
| • High D-max                       | Boasts a wide tonal range, producing high image quality prints with a rich textural quality    |
| • Purer Whiteness                  | Clearer, more distinct print images and sharper text quality                                   |
| • Vibrant Color Reproduction       | Expanded color reproduction range with high color saturation, ideally suited to commercial use |
| • Excellent Latent Image Stability | Stable production of more uniform high quality prints for greater productivity                 |
| • Excellent Image Stability        | High level of image stability ideal for display purposes                                       |

### 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

Paper Size \ Storage Temperature	-20°C (-4°F)	0°C (32°F)	10°C (50°F)
127cm x 50 m (50 in. x 164 ft.)	12	10	7

### 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 Fujifilm 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 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 recommended to use low force during assembling albums. Also the change in the photographic image or base material is 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 Prints Storage

1. 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.

2. Even during normal storage, it is recommended that prints be stored in 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).

3. 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 be used that has superior spectral characteristics, adequately high color temperature and sufficient brightness. Prints can appear different when viewed under different lighting conditions. 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.

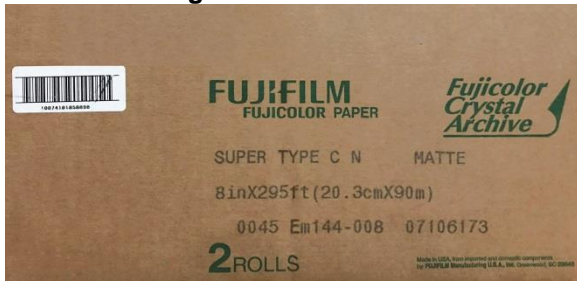
When inspecting finished prints, be careful to shut out all external light and colored reflected light.

## 8. Paper surface available

FUJICOLOR CRYSTAL ARCHIVE DIGITAL PAPER SUPER TYPE CN is available either Glossy or Matte surface.

## 9. Markings (Box/Emulsion numbers)

### 9.1 Box markings



### 9.2 Bag labeling



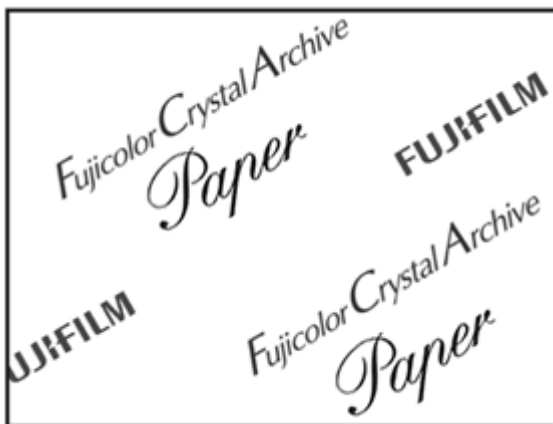
### 9.3 Emulsion numbers

Emulsion numbering will be in ascending order from 1xx-xxx

Note: FUJICOLOR paper is marked with a three-digit emulsion number followed by an additional three digit roll number.

Should any problem arise with FUJICOLOR CRYSTAL ARCHIVE PAPER SUPER TYPE CN, the additional three digit number suffix to the emulsion number should be indicated on the claim. Where possible also report the 10 digit production ID code on the label.

## 10. Back printing



Note: Some sizes in Matte surface available without back printing.

## 11. Technologies incorporated in this paper

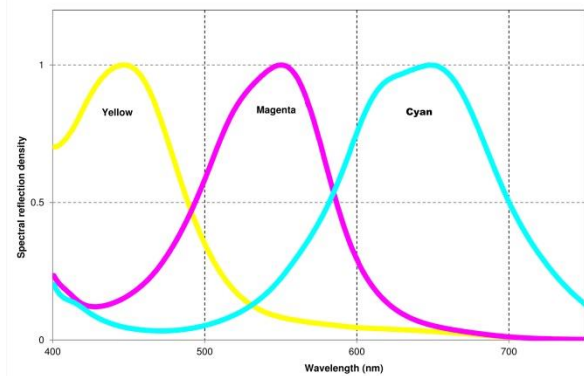
### 11.1 X-Coupler Technology

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

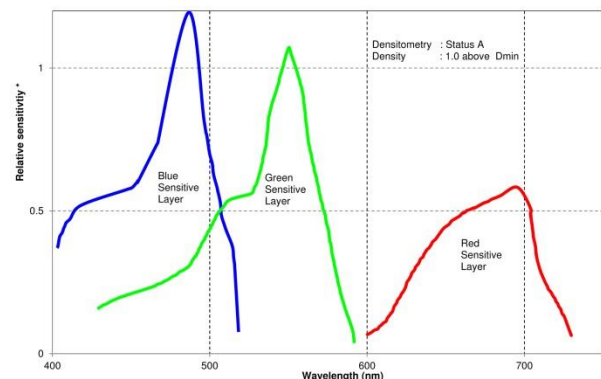
### 11.2 NLS (New Low Stain Spectral Sensitizer) Technology and ARR (Advanced Resistance-to-Radiation) Technology

FUJICOLOR CRYSTAL ARCHIVE DIGITAL PAPER SUPER TYPE CN 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

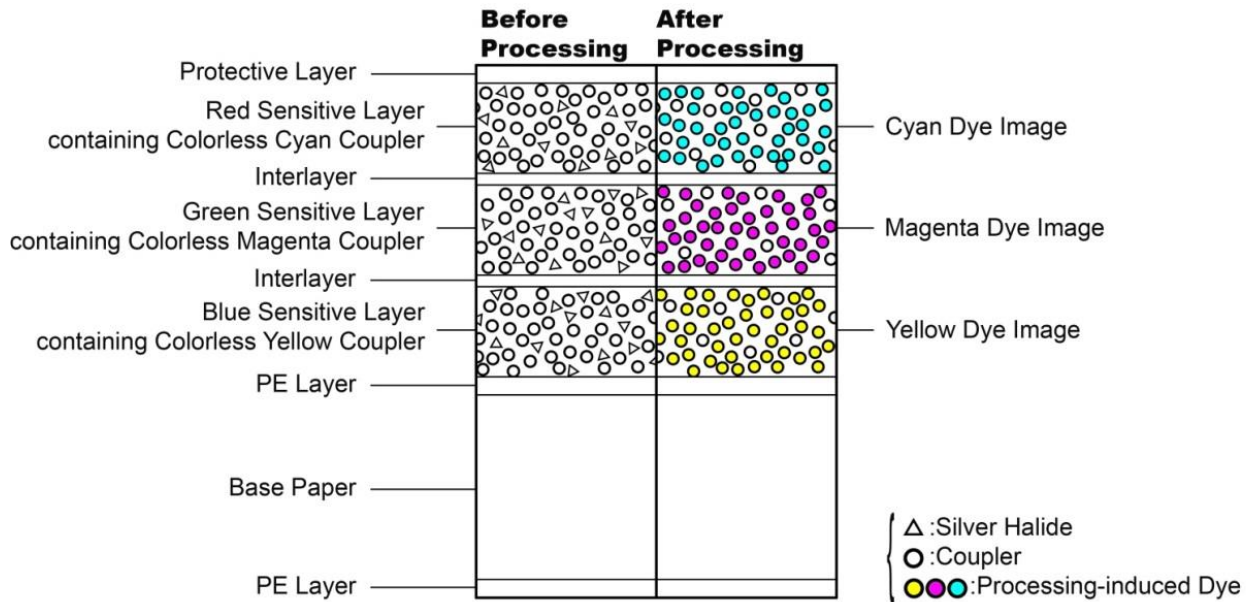


## 13. Spectral sensitivity curves



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

## 14. Paper structure



## 15. Sizes available

Crystal Archive Type CN Paper							
Lengths \ Widths	100'	164'	275'	295'	329'	575'	610'
4 in							G,M
5 in.							G,M
6 in.							G,M
8 in.				G,M			
10 in.					G,M*	G,M	
10 in. Bulk					M*		
11 in.				G,M			
12 in.				G,M			
20 in.			G,M*				
24 in. EM OUT			M*				
24 in. EM IN			M*				
30 in. EM IN		G,M*					
32 in. EM IN		M*					
40 in. EM IN		G,M*					
50 in. EM IN		G,M*					
60 in. EM IN	M*						

\* Matte Non-Back Print

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

## 16. Calibration data

### Fujicolor Crystal Archive Super Type CN Paper

Equipment		Latest Software	Calibration data				
Brand	Name		LUT + Target density RGB		Basic calibration ymcd	Intermittence rgb	Thickness
			Glossy	Matte			
Frontier	3 series	Installer R	LUT B		n.a.	n.a.	n.a.
	5 series	Installer R	LUT B				
	7 series	V 4.01	LUT B-1	LUT B-2			
Noritsu	QSS 28 - LP24Pro	Vol.2 7.20	158		n.a.	n.a.	n.a.
	QSS 35/37/38/39 series	Vol.3 N4.54					
Agfa Dlab	Dlab 1,2,3		2.35 / 2.35 / 2.25	2.25 / 2.25 / 2.15	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		2.35 / 2.35 / 2.25	2.25 / 2.25 / 2.15	n.a.	n.a.	0.21
	Wideprint 8", 12nG		158		n.a.	n.a.	n.a.
	Wideprint R2R						
ZBE	SE, Pro Lab, R2R		2.35 / 2.35 / 2.25	2.25 / 2.25 / 2.15	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		2.35 / 2.35 / 2.25	2.25 / 2.25 / 2.15	0.004 / 0.056 / 0.000 / 0.920	90 / 50 / 37	n.a.
	Zeta						
	Theta 50/51				170.2 / 112.0 / 0.00 / 104.3		
	Theta 76/76HS				0.006 / 0.085 / 0.000 / 1.325	101 / 56 / 42	
	Lambda				124.0 / 95.8 / 0.00 / 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 highly active chemistry equal to Fujifilm CPRA Digital Pro AC and Fujifilm ADM chemistry  
For competitive and regenerated chemistry the Dmax should be reduced by -0.10 for all three colors.

\* OCE Lightjet media target location: [https://dgs.oce.com/PrinterSupport/LJ\\_Customer\\_Access/LJ430\\_Cust\\_index.htm](https://dgs.oce.com/PrinterSupport/LJ_Customer_Access/LJ430_Cust_index.htm)

For improved monochrome (B&W and Sepia) print quality we recommend calibration of each emulsion roll number

## 17. Use with Frontier

Please refer to the following calibration data as a guide when using FUJICOLOR CRYSTAL ARCHIVE DIGITAL PAPER SUPER TYPE CN on a digital printer. All Frontiers requires a dedicated LUT when printing. It is necessary to adjust for the paper type for each paper magazine by changing the paper "Type" specification in the "Paper Magazine Registration" menu.

### 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 < SE2 > for the user name and password of < 7777 >
- Select < 5 Printer Adjustment / Maintenance >, < 1 Paper Magazine Registration > (Menu 451) and change the type to "B" as shown in the table below.

Paper	Type	Surface
Crystal Archive Paper Type PDN/CN	B	G / M

- 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 type is 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 on the "initialize" button will not be possible if you do not login with a user name or lab administrator account or higher).

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

- Log in to the < 4 Setup and Maintenance > menu with < SE2 > for the user name and password of < 7777 >.
- Select the < Adjustment / Maintenance >, < 02 Print Condition Setup and Check >, < 0221 Paper Magazine Registration >. Change the paper type to "B" as shown in the table below.

Paper	Type	Surface
Crystal Archive Paper Type PDN/CN	B	G / M

- 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 type is 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 login 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 the [maintenance] to access the Maintenance display. Click [Extension] – [Setup] – [Laser Setup] – [Paper Specification Registration/Setup].
2. Select the paper type “B-1” or “B-2” as shown in table below:


Paper	Type	Surface
Crystal Archive Paper CN	B-1	G / L
Crystal Archive Paper CN	B-2	M / S

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

**18. Technical Support**

In case abnormalities are found when using this FUJICOLOR CRYSTAL ARCHIVE DIGITAL PAPER SUPER TYPE CN 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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