FUJIFILM
AF3-0230E
PRODUCT INFORMATION BULLETIN
COLOR NEGATIVE PAPERS

FUJICOLOR CRYSTAL ARCHIVE WRITABLE PAPER

1. FEATURES AND USES

FUJICOLOR CRYSTAL ARCHIVE WRITABLE PAPER is a new silverhalide color paper specifically designed to make durable writable photos possible for calendar, photobook, postcard, greeting cards and fine purposes. The writable paper is designed in such a way that endconsumers can make notes on calendars, postcards or place a signature on a photo.
The surface design shows a unique smooth semi-matte look which has a fingerprint protection layer which makes handling of photos much easier.
The diffuse reflecting surface makes it suitable to expose fine artwork of an artist. Even under high lighting intensity no reflections are present. The emulsion is similar to other Fujicolor Crystal Archive Papers; an additional top-layer enables the writing and fingerprint protection features. So Writable Paper delivers enhanced color reproduction, white purity, excellent image stability, just as well as other Fujicolor Crystal Archive Papers. Writable paper can be used with Frontier series, wide format and high speed printers.

Features

• **Writable surface after processing**	Surface can be written both with normal pen and pencil
• **Finger print protection**	Surface has strong resistance against fingerprints before and after processing
• **Unique semi-matte surface**	Diffuse scattering eliminates annoying light reflection
• **No back-side printing**	Blanc back side can be used for personal printing
• **Same features as Fujicolor Crystal Archive Papers**	Excellent whiteness, Enhanced Color Reproduction, Excellent image Stability

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 Filters No. 103A (or Wratten Safelight Filters 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 or high temperature and 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)
10.2 cm × 186 m (4 in. × 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 Fuji MINILAB Process CP-49E/CP-48S or Fuji Hunt and other RA-4 type processes.

5. POST-PROCESSING PAPER (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, but the effects of light, heat, oxygen in the air, contaminating gases, humidity and mold cannot be completely avoided. It is possible, however, to minimize the change in the photographic image or base material 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 Print 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, polyethylene, or polypropylene plastic, etc.

② 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 sunlight and other strong light or 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. For this reason, prints should be stored with their front surfaces facing away from each other. If the adjacent print placement is unavoidable, it is necessary to keep the surfaces separated by, for example, the use of interleaving sheets of paper.

6. 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. 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.

7. USE WITH FRONTIER

Please refer to the following calibration data as a general guide when using FUJICOLOR CRYSTAL ARCHIVE WRITABLE PAPER on a digital printer.
All Frontiers requires a dedicated LUT when printing.
This dedicated LUT is available on installer A3.
For availability of this CD, please contact your local distributor.

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.

<Changing Paper Type Specification of Paper Magazine for Frontier 350/370/390>

1 Make sure the printer version number in the main menu ends with an "h" or later.
2 Log in to the "4 Setup and Maintenance" menu with "SE2" for the user name, and a password of "7777".
3 Select "5 Printer Adjustment/Maintenance" – "1 Paper Magazine Registration" (Menu 451) and change the paper type to "F" as shown in the table below.

Ver	Type	Paper
h or later	F	Other 1

4 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 were changed.
* It is important to click the "Initialize" button to initialize the settings before making the paper condition setup. After intialization, 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.)

<Changing Paper Type Specification of Paper Magazine for Frontier 355/375/550/570/590>

1 Press the (i) button in the main menu (at the bottom left-hand corner) and confirm that system version you use.
2 Log in to the "Setup and Maintenance" with the Password "7777".
3 Click the [Setup and Maintenance] – [02 Print Condition Setup and Check] – [0221 Paper Magazine Registration]. Change the paper type depending on version as shown in the table below.
4 Click the [Setup and Maintenance] – [02 Print Condition Setup and Check] – [0220 Paper Condition Setup] buttons and perform a paper condition setup for all magazines for which the paper types were changed.

For Frontier 355/375

Ver	Type	Paper
h or later	F	Other 1

For Frontier 550/570/590

Ver	Type	Paper
r	A	Other 1

* It is important to click the "Initialize" button to initialize the settings before making the paper condition setup. After intialization, 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 of 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 "J-4" as shown in the table below.

Paper	Type
CRYSTAL ARCHIVE WRITABLE paper.	J-4

NOTE Paper name is not displayed.

3 Follow the instructions on the Paper specification registration/setup. Make the test prints, and register the measurement result.

8. CALIBRATION DATA FOR PRINTERS

Please refer to the following calibration data as a general guide when using the FUJICOLOR CRYSTAL ARCHIVE WRITABLE PAPER on a large-format digital printer.

1. Durst Lambda

Dmax. Aim	Basic Calibration
R = 1.40 G = 1.40 B = 1.40	Y = 124.0 M = 95.8 C = 0.00 D = 129.0

Durst Theta 50/51

Dmax. Aim	Basic Calibration
R = 1.40 G = 1.40 B = 1.40	Y = 170.7 M = 112.0 C = 0.00 D = 104.3

Durst Theta 76

Dmax. Aim	Basic Calibration	Intermittency
R = 1.40 G = 1.40 B = 1.40	Y = 0.006 M = 0.085 C = 0.000 D = 1.325	R = 101 G = 56 B = 42

Durst Epsilon 30 Plus

Dmax. Aim	Basic Calibration	Intermittency
R = 1.40 G = 1.40 B = 1.40	Y = 0.004 M = 0.056 C = 0.000 D = 0.920	R = 90 G = 50 B = 37

9. PAPER SURFACE AVAILABLE

FUJICOLOR CRYSTAL ARCHIVE WRITABLE PAPER is only available as the unique semi-matte surface.

10. CONTROL STRIPS

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

11. SIZES AVAILABLE

• Rolls

Width \ Length	50 m (164 ft)	90 m (295 ft)	186 m (610 ft)
10.2 cm (4 in.)			●
12.7 cm (5 in.)			●
15.2 cm (6 in.)			●
20.3 cm (8 in.)		●	
25.4 cm (10 in.)		●	
30.5 cm (12 in.)		●	
50.8 cm (20 in.)		●	
76.2 cm (30 in.)	●		
127 cm (50 in.)	●		

NOTE Size availability may change without prior notice.

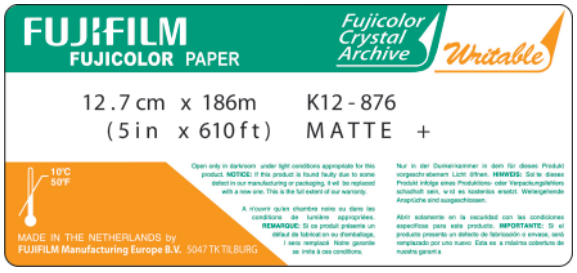
12. BACKPRINTING

FUJICOLOR CRYSTAL ARCHIVE WRITABLE PAPER is only available without backprint.

13. MARKINGS (BOX/BAG/EMULSION NUMBERS)

13-1 Box Markings

13-2 Bag Labeling

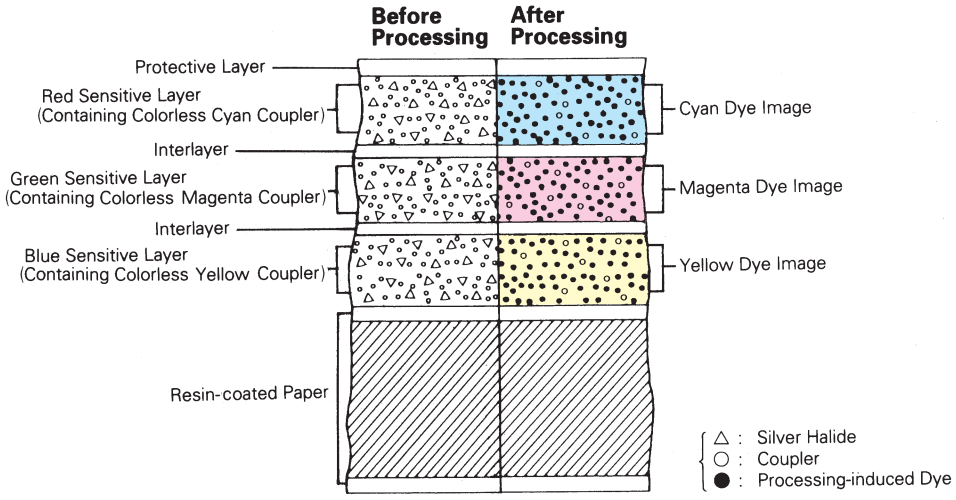


13-3 Emulsion Numbers

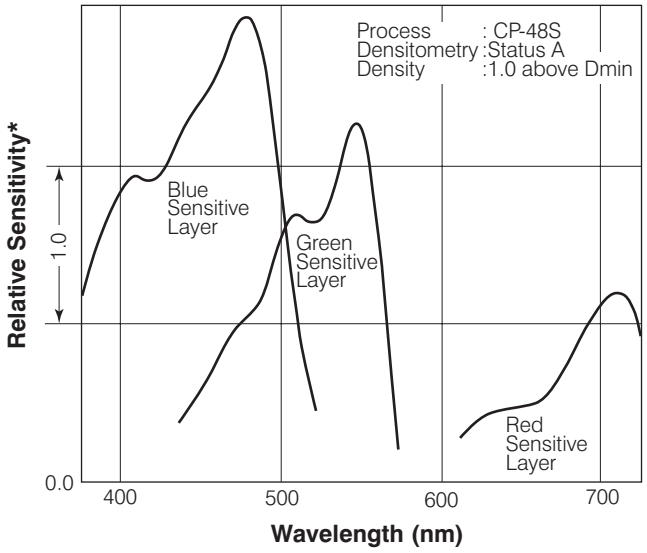
Emulsion numbering will be in ascending order from K01 at introduction.

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

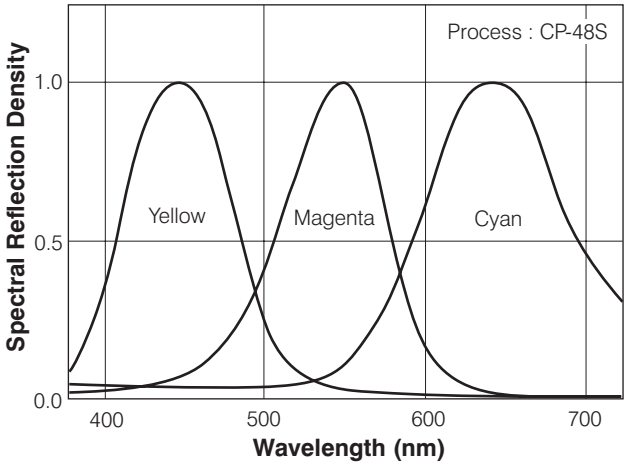
14. PAPER STRUCTURE



15. SPECTRAL SENSITIVITY CURVES



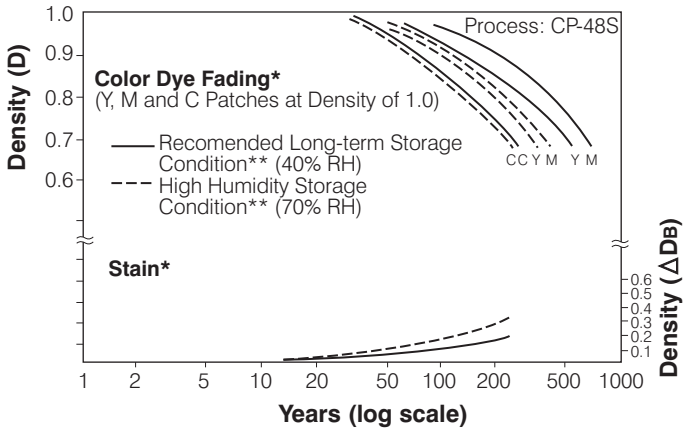
16. SPECTRAL DYE DENSITY CURVES



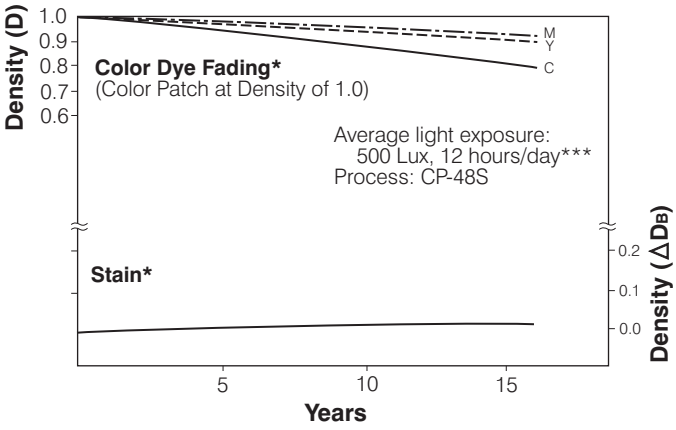
* Sensitivity equals the reciprocal of the exposure (J/cm^2) required to produce a specified density.

17. IMAGE STORAGE CHARACTERISTICS

• Estimated Dark Storage Stability at 25°C (77°F)



• Estimated Light Storage Stability under 500 Lux Intermittent Illumination Conditions***



* 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).

*** Since in common domestic situations sunlit areas may be as 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.

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

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