FUJIFILM
AF3-198E
PRODUCT INFORMATION BULLETIN
COLOR NEGATIVE PAPERS

FUJICOLOR CRYSTAL ARCHIVE PAPER <NEW>

1. FEATURES AND USES

FUJICOLOR CRYSTAL ARCHIVE PAPER <NEW> is a silver halide color paper designed to produce high-image-quality color prints on both analog and digital printers. In addition to the many superb features of the current FUJICOLOR CRYSTAL ARCHIVE PAPER, this new 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 newly developed digital minilab Frontier 570, it enables the realization of super-fast processing, resulting in a dramatic improvement in productivity.

Features

- **More Vivid Color Reproduction** ····· Retains beautiful colors such as subtle shades of green, vivid blues and reds
- **More Brilliant Whites plus Improved Highlight Details** ····· Further improved whiteness, with clearer and more distinct highlight details
- **Excellent Image Stability** ····· Exhibits high image stability during long-term dark storage and excellent light storage stability, as well as sharply improved storability with respect to nitrogen oxide, ozone and other gases
- **Improved Handling Characteristics** ··· Improved tolerance for processing unevenness and pressure-induced density variations that sometimes occur
- **High productivity** ····· Realizes high productivity when used in conjunction with the Frontier 570.

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 × 185.9 m (4 in. × 610 ft.)	6	5	3.5

NOTES
- Do not heat paper in order to equalize temperatures.
- Remove paper from refrigeration on 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 CP-40FA, CP-43FA, CP-47L, CP-48S, and CP-49E, or 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 330/340/350/355/370/375/390/570

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 330/350/370/390>

① Log in to the "4 Setup and Maintenance" menu with "SE2" for the user name, and a password of "7777".

② Select "5 Printer Adjustment/Maintenance" – "1 Paper Magazine Registration" (Menu 451) and change the paper type to "C" as shown in the table below.

Paper	Type
CRYSTAL ARCHIVE PAPER <NEW>	C
CRYSTAL ARCHIVE PAPER	E

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 were 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.)*

<Changing Paper Type Specification of Paper Magazine for Frontier 340/355/375/570>

① Log in to the "Setup and Maintenance" with the Password "7777".

② Click the [Setup and 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 <NEW>	C
CRYSTAL ARCHIVE PAPER	E

③ Click the [Setup and Maintenance] – [02 Print Condition Setup and Check] – [0200 Paper Condition Setup] buttons 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 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.)*

8. USE WITH FA/FA COMPACT SERIES

Since cyan forming dye has been modified in CRYSTAL ARCHIVE PAPER <NEW>, 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 <NEW> is used with FA/FA compact series of Minilabs, it is necessary to set the printing conditions using the "ring-around print" method or another densitometer.

9. PAPER SURFACE AVAILABLE

Glossy, Lustre and Matte

10. SIZES AVAILABLE

• Rolls

Width \ Length	50m (164ft.)	90m (295ft.)	186m (610ft.)	305m (1000ft.)	380m (1246ft.)	450m (1476ft.)	500m (1640ft.)
8.9 cm (3.5in.)		●	●				●
10.2 cm (4in.)		●	●				●
11.4 cm (4.5in.)						●	
12.7 cm (5in.)		●	●		●	●	
15.2 cm (6in.)		●	●	●			
17.8 cm (7in.)		●	●				
20.3 cm (8in.)		●	●				
7.6 cm (3in.)			●				
10.8 cm (4.3in.)		●					
11.7 cm (4.6in.)			●				
12.0 cm (4.7in.)			●				
13.0 cm (5.1in.)			●				
21.0 cm (8.3in.)		●					
22.9 cm (9in.)		●					
24.0 cm (9.4in.)		●					
25.4 cm (10in.)		●	●				
27.9 cm (11in.)		●					
30.5 cm (12in.)		●	●				
40.6 cm (16in.)		●					
50.8 cm (20in.)		●					
60.3 cm (23.7in.)	●						
76.2 cm (30in.)	●						
85.0 cm (33.5in.)	●						
106.0 cm (41.7in.)	●						
127.0 cm (50in.)	●						

NOTES

1. The length of one roll has been changed from 175 m (575 ft.) to 186 m (610 ft.).
   For Fuji Minilab SFA series such as SFA238/248/258, the maximum roll length setting is 180m. Please note that about 6 m of paper for printing is still available with these Minilabs, even if the paper remaining indicator designates "0".
2. The types of paper surface available for each size varies.
3. Size availability may change without prior notice.

• Sheets

size \ sheets/box	50
24.0 × 30.5 cm	●
27.9 × 35.6 cm	●
30.5 × 40.6 cm	●
40.6 × 50.8 cm	●
50.8 × 61.0 cm	●
76.2 × 102 cm	●

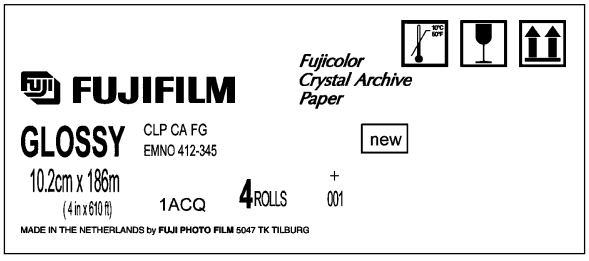
11. CONTROL STRIPS

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

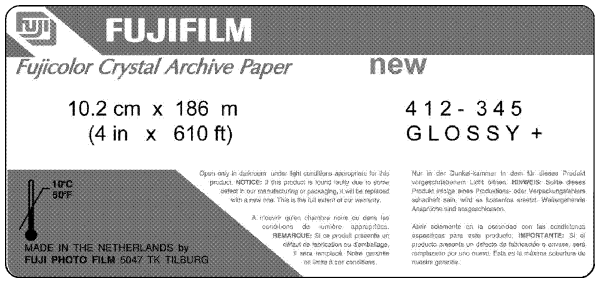
* When using CRYSTAL ARCHIVE PAPER <NEW>, the LD value may slightly increase in control strips with some processing chemicals. However, there is no problem in processing performance.

12. MARKINGS (BOX/BAG/EMULSION NUMBERS)

12-1 Box Markings



12-2 Bag Labeling



12-3 Emulsion Numbers

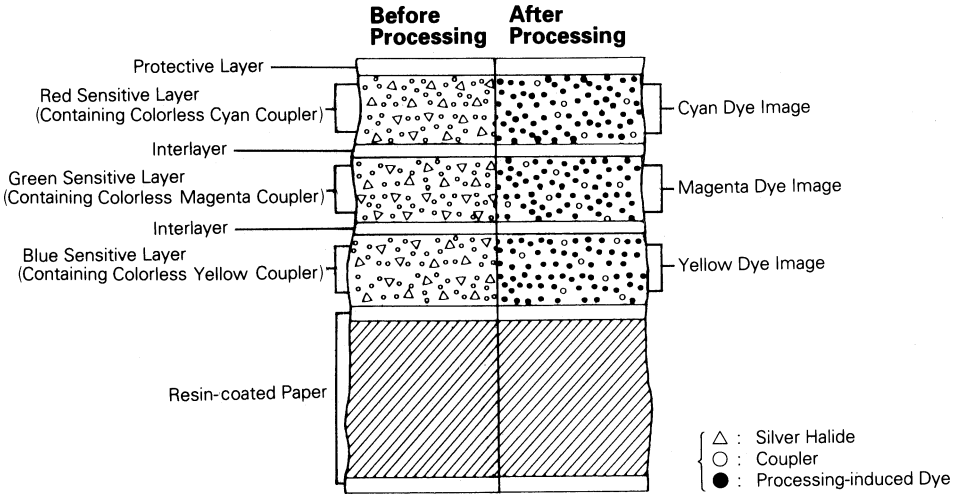
Emulsion numbering will be in ascending order from 401 at introduction.

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 PAPER <NEW>, the additional three-digit number suffix to the emulsion number should be indicated on any claim.

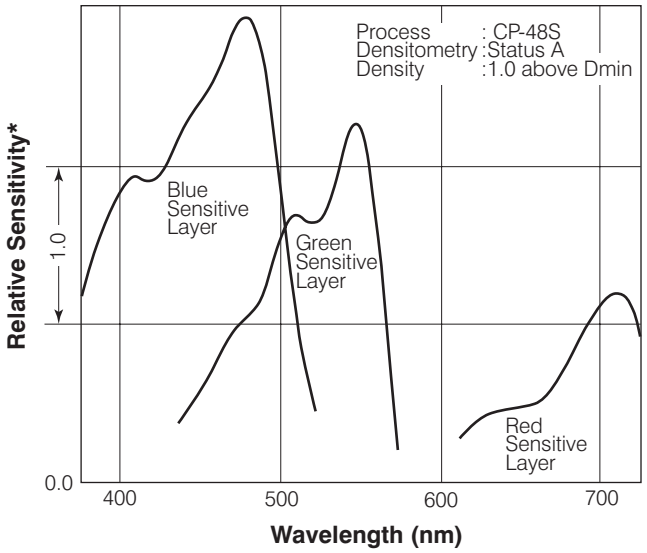
13. BACKPRINTING

Back printing is the same as the for current FUJICOLOR CRYSTAL ARCHIVE PAPER.

14. PAPER STRUCTURE

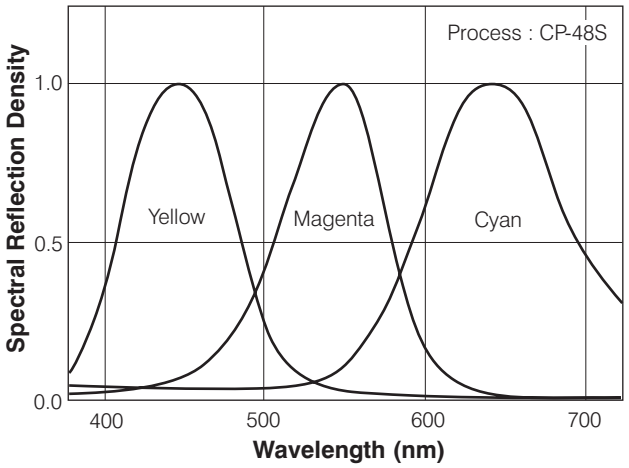


15. SPECTRAL SENSITIVITY CURVES



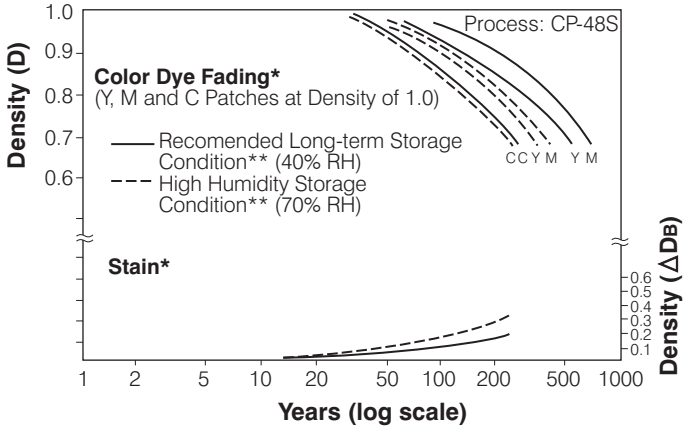
* Sensitivity equals the reciprocal of the exposure (J/cm^2) required to produce a specified density.

16. SPECTRAL DYE DENSITY CURVES

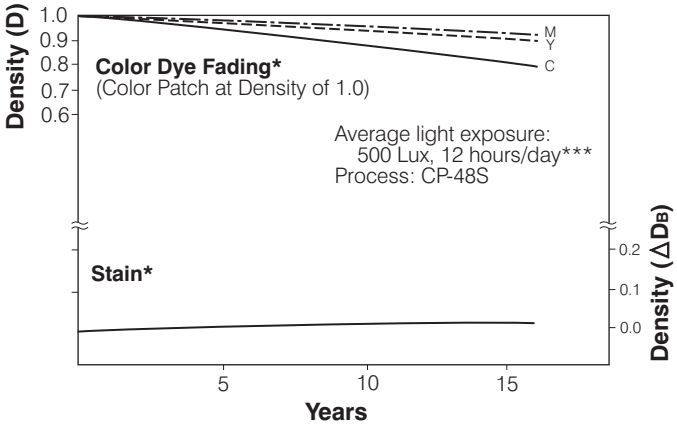


17. IMAGE STORAGE CHARACTERISTICS

- **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 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 prior notice.

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