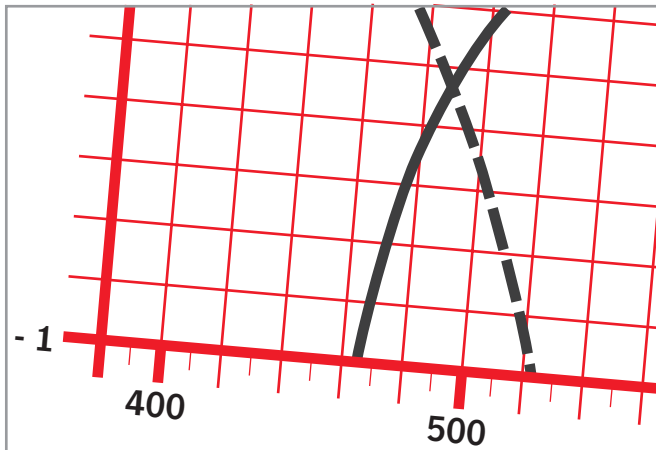


TECHNICAL DATA

AGFACHROME CRD DUPLICATING FILM



The AGFACHROME CRD DUPLICATING FILM

- is the film for producing colour transparency duplicates with the best match to the original.
- is used mainly for the production of duplicates from transparencies in original size, or as enlargements or reductions.

The results achieved with the AGFACHROME CRD DUPLICATING FILM are convincing. Whether as prints or as projected slides, the film features high colour fidelity, accurate rendition of grey shades and optimum highlight and shadow definition.

The film is scan-compatible with all the commonly available duplicating and colour reversal films.

The high stability of the dyes ensures that the duplicates have a long archiving life.

Application:

- Duplicates from original colour transparencies.
- Enlargements or reductions from colour transparencies.
- Matching up of duplicates from colour transparencies with differing properties (density, colour) for single scanning.
- Duplicates for photocomposing.
- Correction of colour balance deviation in the original.
- Duplicates for retouching, drawing or writing on, so as not to damage the originals.
- Duplicates for double exposures or for exposing text into the picture.

The product range

AGFACHROME CRD DUPLICATING FILM is available in the standard widths and lengths.

Packaging

Product label:

AGFACHROME CRD DUPLICATING FILM

The original packaging protects the film from light and the short-term effects of gas and moisture.

The long roll film is spooled onto a plastic core K 50 R 26. The roll is wrapped in a polyethylene bag inside the usual tin can.

Edge marking:

Agfa, plus 4 digit emulsion number and frame number.

Storage

Unexposed films should be stored in the original packing in a cool place (below + 13 °C/55 °F). Deep freezing (below - 10 °C/14 °F) can keep the photographic properties stable for a lengthy period. Cold stored film should be allowed about three hours to adjust to room temperature before opening the original pack. Otherwise condensation will form on the film.

After being taken out of the original packing, the films should never be exposed to high temperatures or high humidity for any length of time. In particular films should be protected from the effects of harmful fumes (e.g. from furniture, chipboard, cosmetics, glues or paints).

Duplicate transparencies should only be stored in cool dry rooms (and in envelopes or bags for photographic materials) and protected from harmful fumes and direct light.

Colour balance

AGFACHROME CRD DUPLICATING FILM is balanced to the colour temperature of copying or enlarging light (3200 Kelvin), including a basic filtration.

When daylight or flashlight is used, the higher colour temperature will have to be compensated with a conversion filter and colour correction filters (for extending the exposure time, see filter factors).

Granularity

Diffuse RMS granularity value (x 1000) = 10

Read at diffuse density of 1.0 and with visual filter (V_{λ}) and a 48 μm aperture. This figure is equivalent to a 12-fold magnification.

Resolution

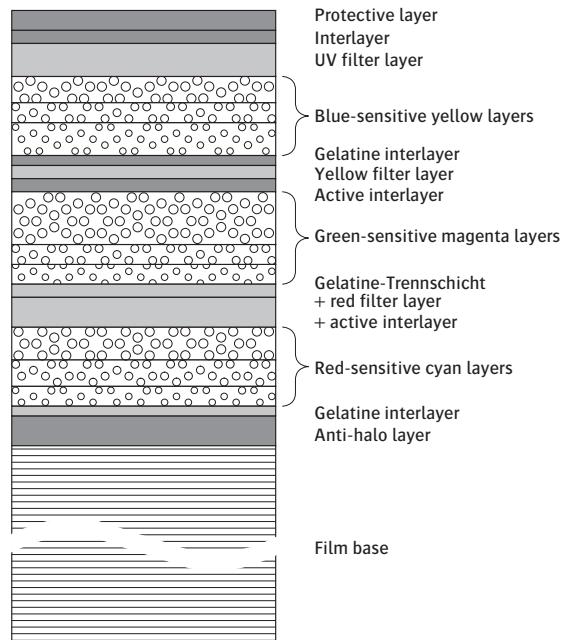
125 lines/mm (contrast 1000 : 1)

63 lines/mm (contrast 1.6 : 1)

Layer structure (schematic)

This complex layer structure incorporates the very latest film technology to ensure maximum quality and consistency in production.

All films based on the chromogenic colour process have three light-sensitive emulsion layers, which are sensitized to the blue, green and the red spectral ranges. The duplicating film has three emulsion layers with different speed for the blue, green and red spectral ranges. There are diffusion-proof colour couplers incorporated in the layers which react with the oxidation products of the colour developer to form dyes – in the blue-sensitive layer yellow dye, in the green-sensitive layer magenta dye, and in the red-sensitive layer cyan dye. The silver image is extracted during processing. A pure dye image is left in the emulsion, which reproduces the natural colours of the subject.



The emulsion support (film base) consists of acetyl cellulose (safety film to DIN 15 551).

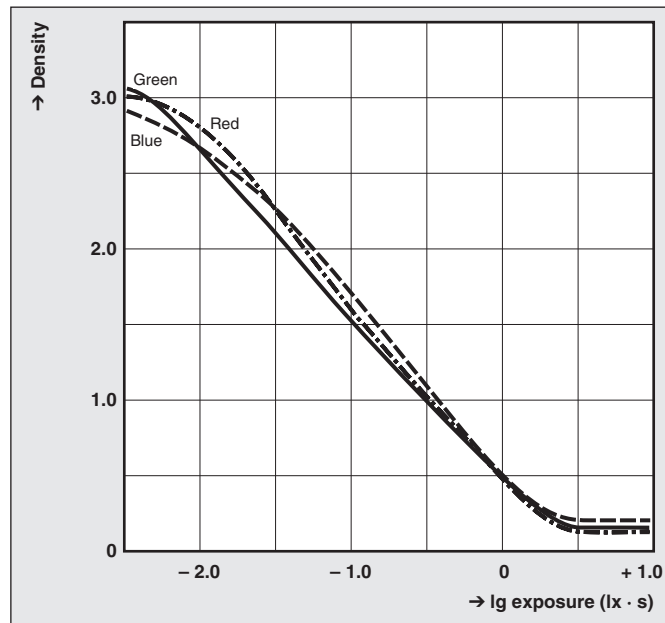
Thickness of the emulsion support: approx. 130 μm

Colour density curves

Exposure: 5 sec. with tungsten light + neutral filtration

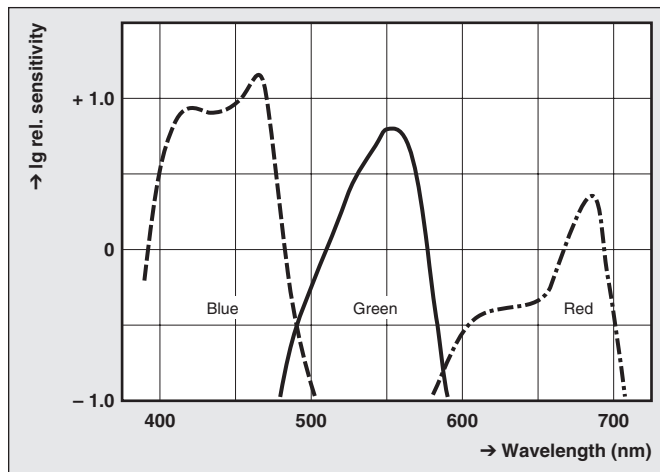
Process: AP 44 / E-6

Densitometry: Status A



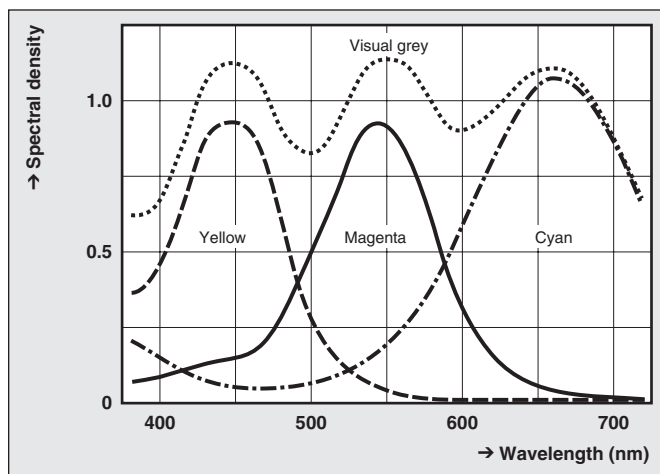
Spectral sensitivity (related to equal-energy spectrum)

The curves shown below refer to a density of 1.0 above minimum density. The sensitivity is the reciprocal of the exposure (in mJ/m²) required to produce the given density.



Spectral density

The diagram shows the spectral densities of the emulsion dyes with a visually neutral grey tone (density 1.0).

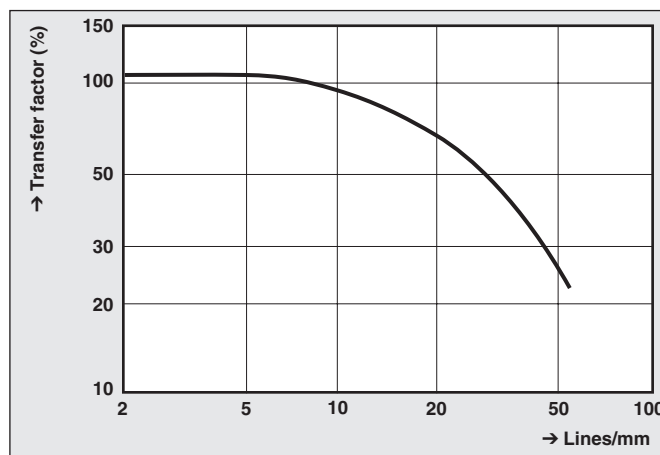


Sharpness

Modulation transfer function (MTF).

Densitometry: visual filter

Exposure: tungsten light + neutral filtration



Latent image

For the day-to-day working in a professional lab, it is important that the results vary very little even if an exposed film is not processed within the usual time.

The AGFACHROME CRD DUPLICATING FILM is noted for its excellent latent image characteristics and consequently its excellent filter consistency. This means that within the usual maximum period of 48 hours, before processing, troublesome changes to the image can be virtually ruled out under normal climatic conditions. It also means that consistent results can be expected with large series.

Reciprocity characteristics

Very long exposures have an effect on general speed. Colour balance deviations can also occur.

The AGFACHROME CRD DUPLICATING FILM has very good reciprocity characteristics. The following table shows the speed and filtration in the range of 1 to 60 sec.

The contrast remains virtually constant. Shifts in colour are minimal, and only with very long exposure times do speed losses need to be compensated by correspondingly longer exposures or wider apertures.

Exposure in sec.	1	10	60
Colour changes (CC filters)	- - -	- 02 02	- 05 07
Filtration	- - -	02 - -	07 02 -
Speed loss	0	- 2 DIN	- 3 DIN

The figures in the table are average values.

Processing

The AGFACHROME CRD DUPLICATING FILM is processed in the AGFACHROME PROCESS 44. This is compatible with the Kodak E-6 process (for further information on AP-44, see technical data C-44).

The contrast can be affected during the first minute of the first development using push/pull (shorter FD time = flatter contrast, longer FD time = steeper contrast). Filtration and exposure time must be adjusted accordingly.

Darkroom work

Exposure, filtration, practical speed

The first step is to adjust the image size and sharpness with the transparency being duplicated. Then remove the transparency from the enlarger and test the lighting intensity on the base board with the working aperture and the necessary filters in the light beam at 4 Lux. The correct exposure time with the necessary working aperture is determined by bracketing and using the usual filtration data.

Guide values: Light intensity: 4 Lux (with filtration)
 Exposure time: 4 sec.
 Filtration: 10 - 10

The exposure time can be varied from 1 second to 20 seconds. If exposure times are short, then the effective colour temperature can change, e.g. through the after glow of the lamps. This does not apply to printing machines with steady-burning lights and shutter. Reproductions with daylight or flash are to be exposed as ISO 12/12° (guide value). Colour deviations must be adjusted by using a conversion filter and CC filters.

Filtration

Colour cast	Subtractive method	Additive method	
	necessary filters	Exposure time decrease	increase
Yellow	magenta and cyan or minus yellow	red and green	blue
Magenta	yellow and cyan or minus magenta	blue and red	green
Cyan	yellow and magenta or minus cyan	blue and green	red
Blue	yellow	blue	green and red
Green	magenta	green	blue and red
Red	cyan	red	blue and green

If the results are too light, they are overexposed and the exposure time must be shortened or the aperture must be closed. In the case of underexposure, the duplicate transparencies are too dark. Exposure time respectively aperture must be adjusted accordingly.

Drying

The drying temperatures will need to be adjusted as with normal reversal films. Films that have not been sufficiently dried will tend to be sticky, while overdrying tends to prevent them from lying flat; in other words if the drying temperatures are too high, the film will start to curl. The maximum permissible drying temperature is 63 °C/ 145 °F.

Final treatment

For dye reduction the standard formulas for colour reversal films are used. For complete reduction, formulas can be provided on request.

Evaluating the duplicates

Colour slides should be evaluated wherever possible only on professional light boxes with standard light conditions (as per ISO 3664).

Illuminant D₅₀ = daylight 5000 K

Further processing

The AGFACHROME CRD DUPLICATING FILM is compatible for further processing:

- Colour separations without deviating from the usual scanner procedures.
- Colour retouching with conventional retouching dyes.

Duplicates on AGFACHROME CRD DUPLICATING FILM can be retouched by the normal methods using conventional transparent dyes (e.g. Kodak E-6 retouching dyes, Pébéo slide colour dyes, Teufel retouching dyes). This is possible on both the emulsion side and the back.

Complaints

In the event of a complaint, send in processed and unprocessed samples of the paper (if possible using the original packing). The complete line of coding must be stated. Material with manufacturing defects will be replaced by the same quantity. No further compensation will be made, except in cases of gross negligence on our part.

Note

The data published here are based on an evaluation of standard products at the time when this technical data was printed. Slight variations are possible, due to production tolerances. Agfa-Gevaert makes every effort to improve the quality of their products, and therefore reserves the right to modify them if necessary.

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Further information

Technical Data C-44: AGFACHROME PROCESS 44

Technical Data F-AF: Agfa Amateur Films

Technical Data F-PF: Agfa Professional Films

Technical Data F-89-E6
Status: 07/2002 6th edition