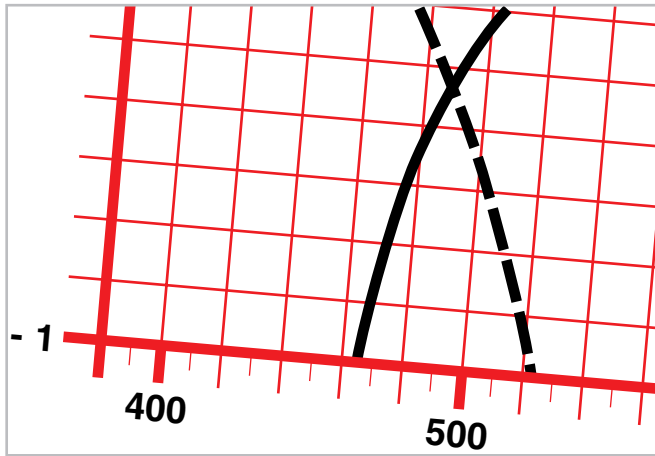


TECHNICAL DATA



AGFA RANGE OF FILMS

AGFACOLOR	Vista 100
AGFACOLOR	Vista 200
AGFACOLOR	Vista 400
AGFACOLOR	Vista 800
AGFACOLOR	Futura II 100
AGFACOLOR	Futura II 200
AGFACOLOR	Futura II 400
AGFACHROME	CTprecisa 100
AGFACHROME	CTprecisa 200

This brochure contains information on the quality and features of Agfa amateur colour films. More specific data, figures and charts are given in the appendix.

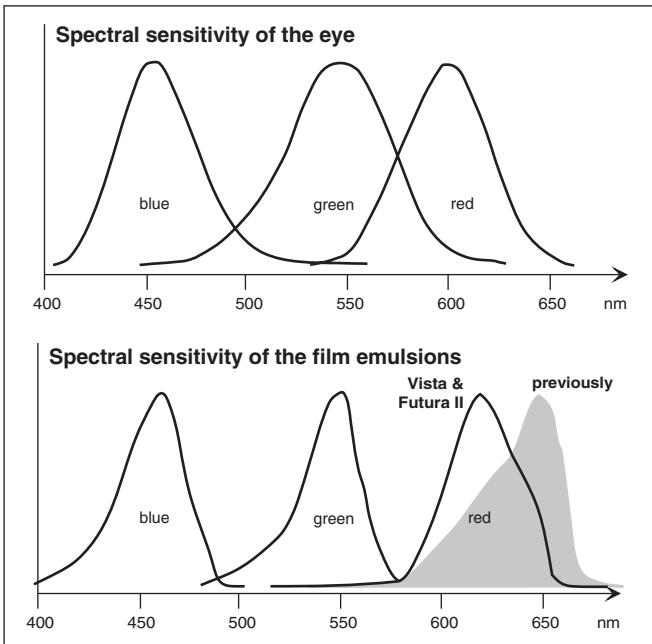
Agfa colour films are high-grade products for all applications in amateur photography. The speed ratings available range from the standard sensitivity, for normal and very bright conditions, up to high sensitivity for bad to critical lighting conditions or fast-moving subjects. The optimum material is therefore available for any situation which may arise in normal practice.

General comments

Agfacolor Vista & Futura II with EYE VISION technology

A film's colour rendition is governed by a number of factors. The emulsions' spectral sensitivity or sensitisation is particularly important, when it comes to reproducing true-to-nature colours with the maximum accuracy. By means of the EYE VISION technology incorporated in all the Agfacolor Vista and Futura II films, it is now possible to match, to a large extent, the films' sensitisation to the colour perception of the human eye. The effect is shown schematically in the following diagrams. The EYE VISION technology achieves more accurate colour fidelity, and largely eliminates the colour falsifications present in films with conventional sensitisation such as:

- an unpleasant green cast with fluorescent light (e.g. neon tubes),
- a shift towards red in certain blue-coloured flowers (hortensia, clematis, delphinium etc.),
- the brown rendition of particular green fabric colours,
- the absence of texture in certain red colours (e.g. roses).



Agfacolor Vista 800

The Agfacolor Vista 800 is the result of a new platform of photo-chemical technologies. Significant progress in all the fundamental areas of Agfa research has led to a product which achieves an exceptional performance in the principal features (the relation of sensitivity to colour rendition, sharpness and fine granularity). Some of the components of these leading technologies are for example:

- **SXM (Surface eXtended Multi-structured) crystals**, which have an extremely efficient light energy yield due to their high aspect ratio (the ratio between their surface and volume);
- **six DIR couplers with varying performance characteristics**, which enhance the colour rendition, sharpness and fine granularity thanks to their exact positioning in the film layers;
- **the integration of colour couplers in the interlayers**, which increases the number of chromogenic part-layers per colour package to four (instead of three as in the past), and contributes to increasing the efficiency of the SXM crystals and finer granularity.

Directions for use

Film speed

Today's ISO values are a combination of the former ASA and DIN values. The following table illustrates this point.

ISO	ASA	DIN	In comparison to ISO 100/21°
100/21°	100	21°	
200/24°	200	24°	twice as fast
400/27°	400	27°	four times as fast
800/30°	800	30°	eight times as fast

In principle, all these speeds are for all photographic situations that might occur under normal circumstances (e.g. people, portraits, landscapes, groups, buildings, holidays, animals, plants, flowers, documentation etc.). Nevertheless, it is still worthwhile observing a number of simple rules in the choice of the film speed.

	ISO 100/21°	ISO 200/24°	ISO 400/27°	ISO 800/30°
Lighting				
– Bright, e.g. cloudless	x	x		
– Medium, e.g. overcast		x	x	
– Weak, e.g. dawn			x	x
Moving subject*				
– Almost motionless	x	x		
– Medium-fast		x	x	
– Fast			x	x
Lens*				
– High speed	x	x		
– Low speed		x	x	x
Flash (medium light output)				
– Small rooms	x	x		
– Large rooms			x	x

* Depending on the lighting

Camera setting

Modern cameras adjust themselves automatically to the film speed (by reading the DX code). Cameras without automatic lighting control must be set manually to the film speed stated on the pack.

Exposure latitude

Most cameras have automatic exposure control, which sets the most favourable ratio of exposure time and aperture. Nevertheless, many photographs are not correctly exposed, because the automatic control of some cameras cannot cope with unusual or critical lighting conditions. Backlit shots are a typical example. Without lighting adjustment, the negative or slide may well end up being under-exposed by one or two f-stops. Depending on the film type, Agfa films tolerate exposure errors up to 5 f-stops (under-exposure up to 2, over-exposure up to 3 f-stops) without noticeable reductions in quality (for exact figures see "Characteristic values and curves of various films" from page 5).

Exposure notes

When in doubt, it is good to err on the generous side in the exposure of colour negatives (i.e. stop up = lower f-number), but to be more cautious with slide films (i.e. stop down slightly = higher f-number). In this way you are always on the safe side: over-exposing a negative film and slightly under-exposing a slide film produces an increase in colour saturation.

Daylight

Daylight is not just daylight. In the morning and in late afternoon the sun is at an angle. As a result, the light is warmer and contains more red. At noon, on the other hand, when the sun is shining vertically, the light is colder and contains more blue. This quality of the light, which is known as the colour temperature, is measured in Kelvin.

All AGFACOLOR and AGFACHROME films are suitable for use in medium daylight, at a colour temperature of 5 500 Kelvin. If the light is too cold, it can be adjusted with a red filter (e.g. R 1.5 or R 3), and if it is too warm, with a blue filter (e.g. B 1.5 or B 3). These corrections should only be used with slide films.

Flash

Electronic flash-guns and flash bulbs are suitable for medium daylight. The guide number of the flash depends on the film speed. Tip: if a subject is dark or far away, you can achieve better flash photos by stopping up one step.

Artificial light

Artificial light, i.e. light from sources such as photographic lamps, electric bulbs or fluorescent tubes, has its own characteristics. Photographic lamps have a colour temperature of 3 400 K, electric bulbs 3 200 K.

AGFACOLOR negative films and AGFACHROME slide films are ideal for artificial light. For best results a certain type of filter is required, depending on the light source. However as each filter reduces the intensity of the light, this must be compensated as follows.

Type of lamp	Filter	Adjustment
Photographic lamp	80 B	+ 1 ² / ₃ f-stops
Electric bulbs	80 A	+ 2 f-stops

UV blocking filters

Each AGFACOLOR or AGFACHROME film contains an integrated UV protection filter which absorbs any invisible UV radiation contained in daylight. It is therefore not necessary to use a UV blocking filter, though it is useful for a physical protection of the lens.

Polarizing filters

This type of filter is used either for the reduction of reflections, e.g. on glass and water (though not metal), or for the production of certain effects (e.g. a more intensive blue sky). Depending on the filter type, the exposure time needs to be increased by a certain factor (see the instructions for your camera or filter).

Colour filters

Colour filters are intended for black-and-white photography. They are not suitable for colour, as they produce considerable colour shifts.

Long and short-term effects

Extremely long or short exposure times can affect the speed and colour balance of the film. This is known as the reciprocity effect.

The reciprocity effect of AGFACOLOR and AGFACHROME films is excellent. If the exposure time is within 1/10 000th and 1 second, the colours and speed remain the same. However if the exposure is any longer or shorter, then it may be necessary to make exposure or colour adjustments (for details see the tables on page 5).

X-ray checks

X-ray checks, which are inevitable before a flight, can sometimes cause problems. We have found that if an X-ray machine is marked "Film Safe" and the checks do not exceed the usual number, then they do not normally affect a film. Nonetheless films should never be checked in with the normal luggage, but kept with your hand luggage. Visual checks are always safer.

This applies in particular to high-speed films, because the sensitivity of a film to X-rays is proportional to its sensitivity to visible light.

Storage

Remember never to store films under moist or humid conditions. Neither should films be exposed to heat.

Unexposed films: The cooler an unexposed film is stored, the longer it will last. Furthermore, we recommend keeping the film in the original pack, which is moisture-proof (i.e. water-tight), so that the photographic qualities remain stable. Films that have been stored in a refrigerator should be kept at room temperature for about two hours before use, as the atmospheric humidity might otherwise produce condensation on the cold film. A car glove compartment is not suitable for storing films. If the sun is hot, they can easily develop temperatures of up to 80°C/175°F. Fumes, such as formaldehyde, can also be harmful. They are released by furniture, cosmetics, adhesives and varnish. The camera itself only provides inadequate protection. Instead, put your camera in a polyethylene bag if necessary.

Exposed films: Once exposed, a film should be developed as soon as possible. The "latent" image (i.e. the pre-development exposure) may otherwise deteriorate as a result of long-term storage or unfavourable weather conditions, and this disturbs the colour balance.

Developed films: The same safety precautions apply to developed films, i.e. they must be kept in a cool and dry place and protected from harmful fumes and direct light.

Processing

Film development processes are standardized throughout the world. Agfa films are "process-compatible" and are developed in the following processes:

AGFACOLOR negative films	AP 70/C-41
AGFACHROME slide films	AP 44/E-6

From production to the finished picture – Agfa quality assurance

Modern production methods and strict inspections ensure that no films are shipped unless they are within Agfa's extremely narrow tolerance limits. To ensure that this high quality standard reaches the end user, Agfa has incorporated a number of features to enhance the stability of its products.

- **High storage stability**, which largely prevents any changes to the qualities of the film during storage, by the retailer or by the customer.
- Extremely **wide exposure latitude**, which largely compensates for any exposure errors that might occur in practice (e.g. with backlit photographs or a weak flash).
- **High resistance to processing fluctuations** during development – fluctuations which can never be totally avoided, even if process monitoring is very thorough.

Specific product details

The charts and figures shown on page 5 to 8 are briefly explained below, and the conditions of measurement are also described.

All the figures are averages of various production runs. For some emulsion batches they may vary slightly from each other, in spite of the very tightly main-tained tolerances.

Spectral sensitivity

Chart to define the colour sensitivity of an unprocessed film.

References:

- Equi-energy spectrum
- Measured density: 0.5 above minimum density for colour negativ films
1.0 above minimum density for colour reversal films

Absorption of emulsion dyes

Chart to define the relative effect of a processed film on incident light. With colour negative films, it measures the spectral sensitization of the subsequent print material, with colour slide films it measures the viewer's perception under certain defined standard lighting conditions.

References:

- Neutral object of medium brightness
- Minimum density

Colour density curves

Chart to define the density of dyes in a processed film, depending on the lighting.

References:

- Exposure: daylight 1/100th sec.
- Process: AP 70/C-41 or AP 44/E-6
- Densitometry: Status A or Status M

Sharpness

International name of the chart: MTF (Modulation Transfer Function) which defines the sharpness of the image. The higher the transfer factor in %, the lower the loss during transmission of the light.

References:

- Exposure: daylight
- Densitometry: visual filter (V_λ)

Granularity

Granularity is the irregular density of an exposed and processed film surface. The numeric value is based on the RMS (root mean square) method of measurement. The smaller the value, the finer the grain of the film.

References:

- Exposure: daylight
- Densitometry: visual filter (V_λ)
- Reading: diffused density 1.0 48 μm scanning aperture

Resolution

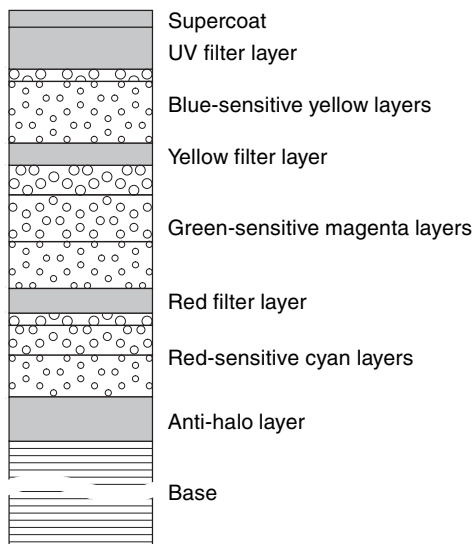
Numeric value which defines the resolution limit for the rendition of the finest adjacent detail (e.g. lines in a grid). Resolution is a purely visual criterion, affected significantly by the contrast range.

References:

- Lines per mm with a contrast range of either 1.6:1 or 1.000:1

Emulsion design

Each type of film requires an individual emulsion design. The schematic diagram below shows the AGFACOLOR Vista 100:



Total layer thickness (without base): 16 μm
(Other films: see pages 5 - 8.)

Emulsion base

The film base consists of acetyl cellulose and has a thickness of 120 μm in 35mm films and 110 μm in pocket films. The base of the films in the Advanced Photo System is made of PEN (Poly Ethylene Napthalate), and is 90 μm thick.

The Agfa standard film range

AGFACOLOR negative films

Films	Vista 100	Vista 200	Vista 400	Vista 800
System code-no. frames	ISO 100/21°	ISO 200/24°	ISO 400/27°	ISO 800/30°
135-36	x	x	x	x
135-24+3	x	x	x	x
135-12+3	x	x	x	x
110-24		x		

AGFACOLOR negative films for the Advanced Photo System

Films	FUTURA II 100	FUTURA II 200	FUTURA II 400
System code-no. frames	ISO 100/21°	ISO 200/24°	ISO 400/27°
240-40	x	x	x
240-25	x	x	x
240-15	x	x	x

AGFACHROME slide films

Films	CTprecisa 100	CTprecisa 200
System code-no. frames	ISO 100/21°	ISO 200/24°
135-36	x	x

Characteristic values and curves of the various films

Reciprocity effect

AGFACOLOR negative films

	Vista 100	Vista 200	Vista 400	Vista 800
exposure reading (s)	1/10 000 -1 10	1/10 000 -1 10	1/10 000 -1 10	1/10 000 -1 10
Exposure adjustment (f-stops)	0 + 1/2	0 +1	0 +1	0 + 1/2

AGFACOLOR negative films for the Advanced Photo System

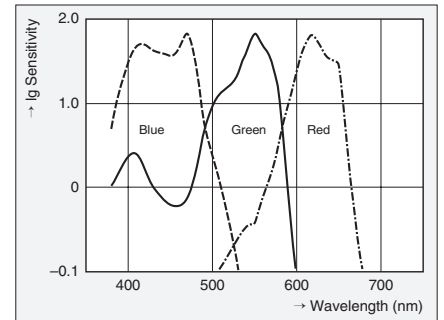
	FUTURA II 100	FUTURA II 200	FUTURA II 400
exposure reading (s)	1/10 000 -1 10	1/10 000 -1 10	1/10 000 -1 10
Exposure adjustment (f-stops)	0 +1	0 +1	0 +1

AGFACHROME-slide films

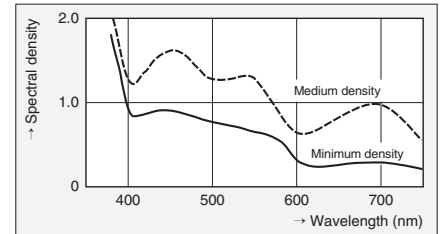
	CTprecisa 100	CTprecisa 200
exposure reading (s)	1/10 000 -1 10	1/10 000 -1 10
Exposure adjustment (f-stops)	0 + 1/2	0 +1
Filtration (CC filter)	0 05 Y	0 10Y 05C

AGFACOLOR Vista 100

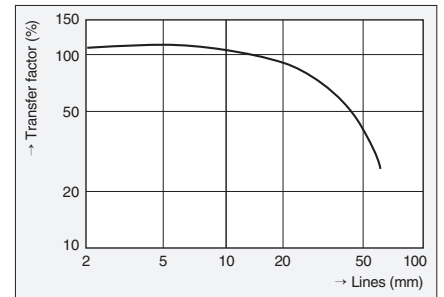
Spectral sensitivity:



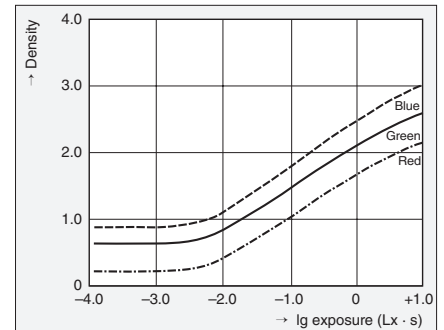
Spectral density:



Sharpness:



Colour density curves:



Speed: ISO 100/21°

Granularity (x 1000): RMS 4.0

Resolving power:
 Contrast 1000 : 1 130 lines/mm
 Contrast 1.6 : 1 60 lines/mm

Exposure latitude: -2 to +3 f-stops

Layer thickness: 16 µm

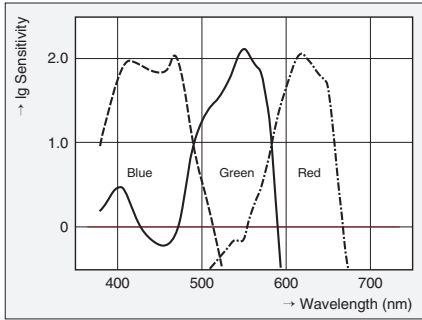
DX coding:
 Cartridge code: 135-15 = 0 1813 6
 135-27 = 0 1813 7
 135-36 = 0 1813 4

Negative code: 113 - 05

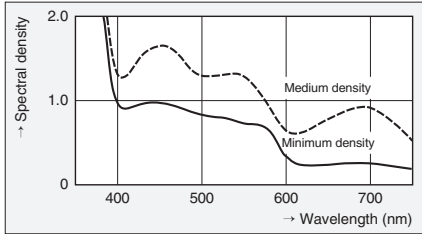
Further markings:
 Symbols: 4 red squares
 Margin marks: AGFA VISTA 100

AGFACOLOR Vista 200

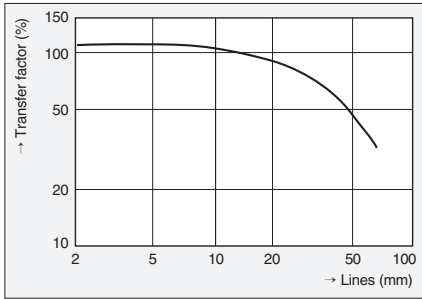
Spectral sensitivity:



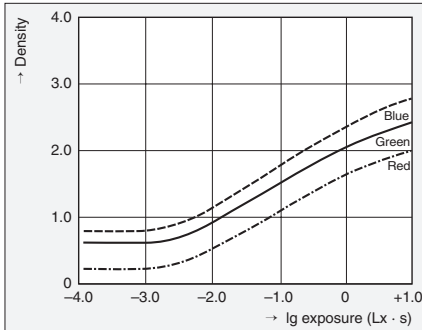
Spectral density:



Sharpness:



Colour density curves:



Speed: ISO 200/24°

Granularity (x 1000): RMS 4.3

Resolving power:

Contrast 1000 : 1 130 lines/mm
Contrast 1.6 : 1 50 lines/mm

Exposure latitude: -1½ to +3 f-stops

Layer thickness: 18 µm

DX coding:

Cartridge code: 135-15 = 0 1814 6
135-27 = 0 1814 7
135-36 = 0 1814 4

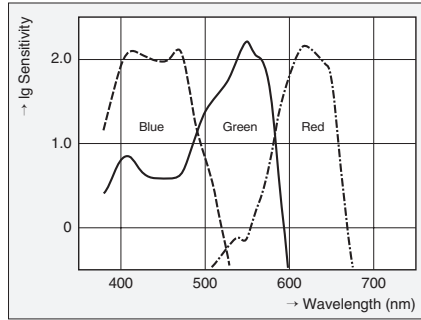
Negative code: 113 - 06

Further markings:

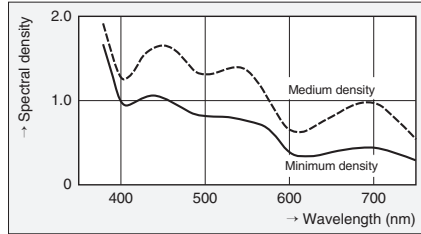
Symbols: 4 red triangles
Margin marks: AGFA VISTA 200

AGFACOLOR Vista 400

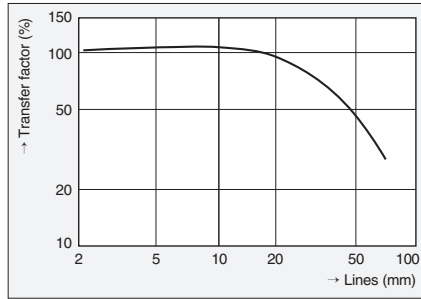
Spectral sensitivity:



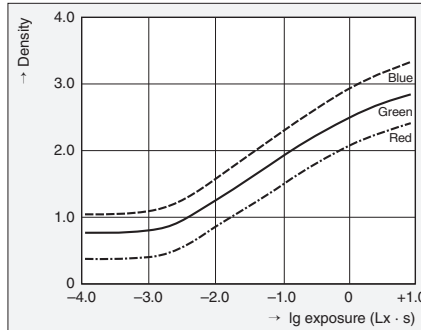
Spectral density:



Sharpness:



Colour density curves:



Speed: ISO 400/27°

Granularity (x 1000): RMS 4.5

Resolving power:

Contrast 1000 : 1 130 lines/mm
Contrast 1.6 : 1 50 lines/mm

Exposure latitude: -1 to +3 f-stops

Layer thickness: 19 µm

DX coding:

Cartridge code: 135-15 = 0 1818 6
135-27 = 0 1818 7
135-36 = 0 1818 4

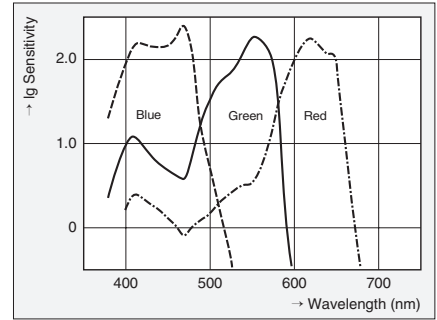
Negative code: 113 - 10

Further markings:

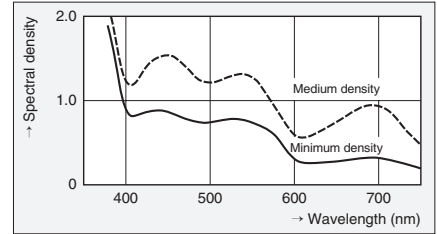
Symbols: 2 red squares
Margin marks: AGFA VISTA 400

AGFACOLOR Vista 800

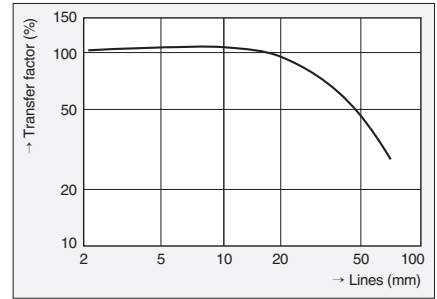
Spectral sensitivity:



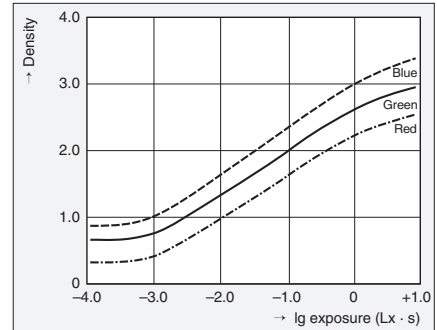
Spectral density:



Sharpness:



Colour density curves:



Speed: ISO 800/30°

Granularity (x 1000): RMS 5.0

Resolving power:

Contrast 1000 : 1 110 lines/mm
Contrast 1.6 : 1 40 lines/mm

Exposure latitude: -1 to +3 f-stops

Layer thickness: 22 µm

DX coding:

Cartridge code: 135-15 = 0 1815 6
135-27 = 0 1815 7
135-36 = 0 1815 4

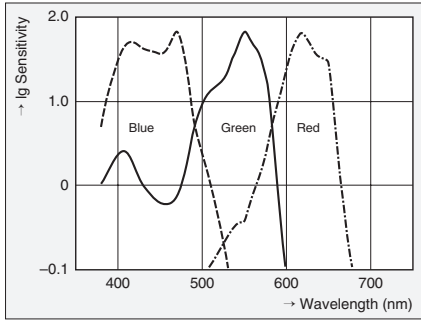
Negative code: 113 - 07

Further markings:

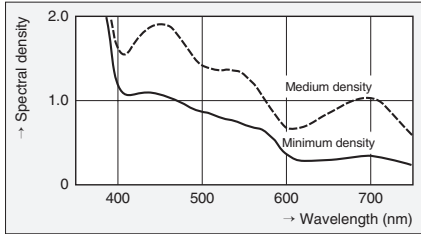
Symbols: 2 blue squares
Margin marks: AGFA VISTA 800

AGFACOLOR FUTURA II 100

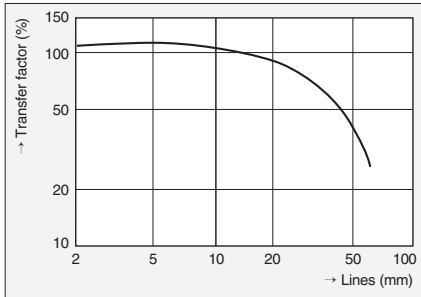
Spectral sensitivity:



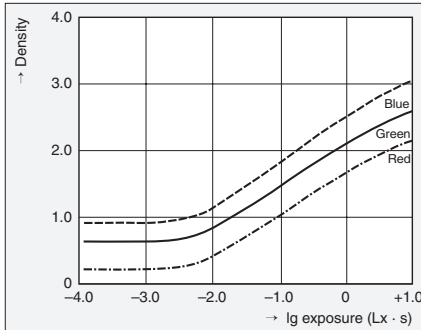
Spectral density:



Sharpness:



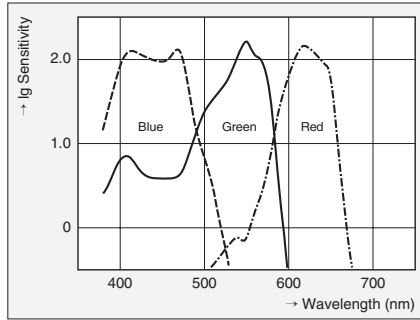
Colour density curves:



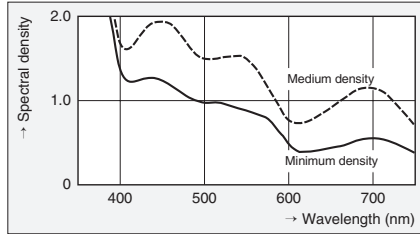
Speed: ISO 100/21°
Granularity (x 1000): RMS 4.0
Resolving power:
 Contrast 1000 : 1 130 lines/mm
 Contrast 1.6 : 1 60 lines/mm
Exposure latitude: -2 to +3 f-stops
Layer thickness: 16 µm
DX coding: 44 - 05
Further markings:
 Margin marks: AGFA FILM/FUTURA II 100

AGFACOLOR FUTURA II 200

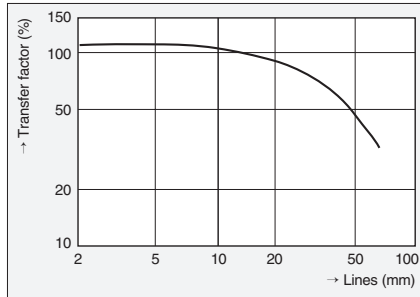
Spectral sensitivity:



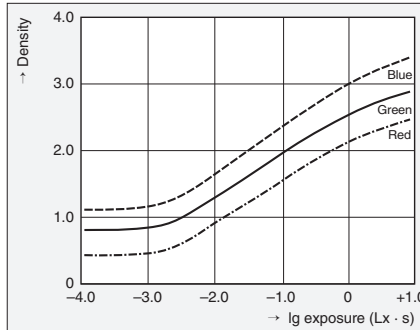
Spectral density:



Sharpness:



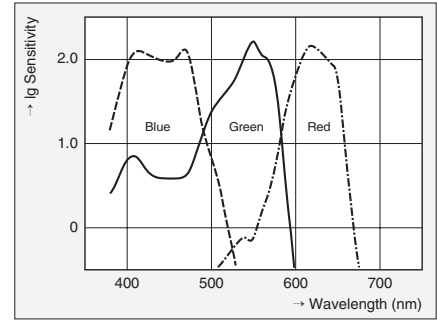
Colour density curves:



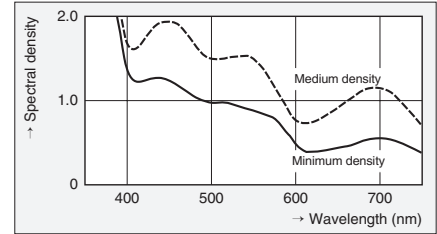
Speed: ISO 200/24°
Granularity (x 1000): RMS 4.3
Resolving power:
 Contrast 1000 : 1 130 lines/mm
 Contrast 1.6 : 1 50 lines/mm
Exposure latitude: -2 to +3 f-stops
Layer thickness: 19 µm
DX coding: 44 - 06
Further markings:
 Margin marks: AGFA FILM/FUTURA II 200

AGFACOLOR FUTURA II 400

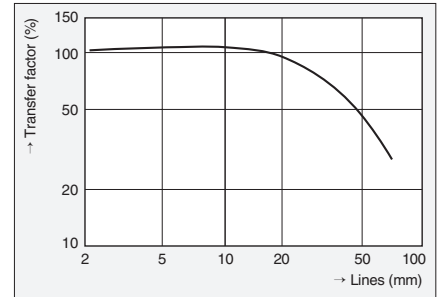
Spectral sensitivity:



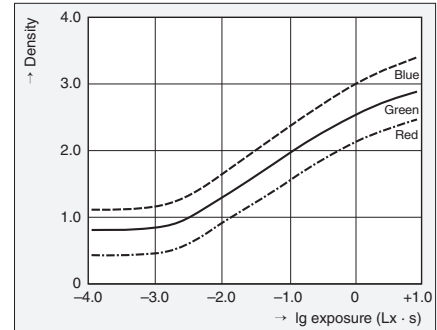
Spectral density:



Sharpness:



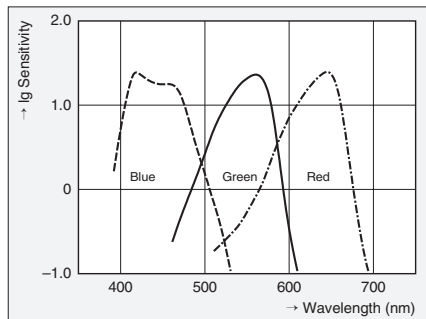
Colour density curves:



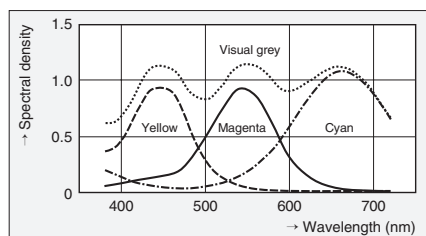
Speed: ISO 400/27°
Granularity (x 1000): RMS 4.5
Resolving power:
 Contrast 1000 : 1 130 lines/mm
 Contrast 1.6 : 1 50 lines/mm
Exposure latitude: -1 to +3 f-stops
Layer thickness: 19 µm
DX coding: 44 - 10
Further markings:
 Margin marks: AGFA FILM/FUTURA II 400

AGFACHROME CTprecisa 100

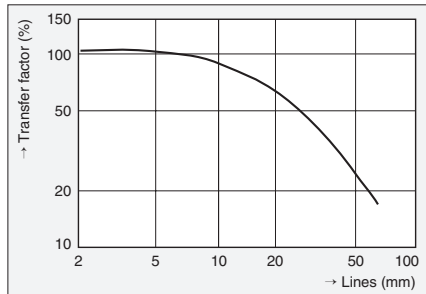
Spectral sensitivity:



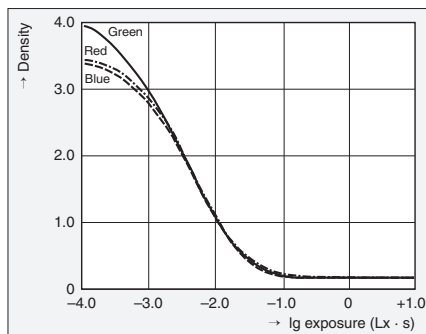
Spectral density:



Sharpness:



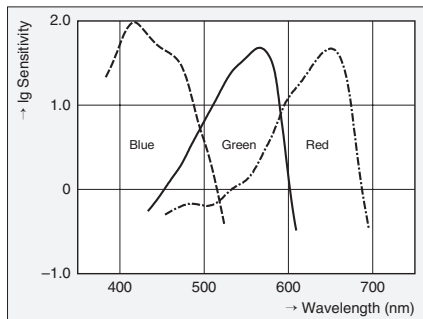
Colour density curves:



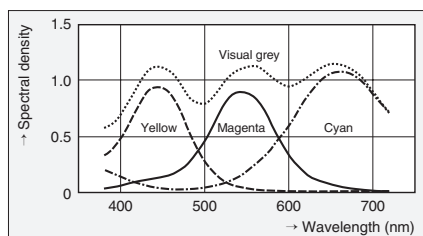
Speed:	ISO 100/21°
Granularity (x 1000):	RMS 10.0
Resolving power:	
Contrast 1000 : 1	130 lines/mm
Contrast 1.6 : 1	50 lines/mm
Exposure latitude:	-½ to +½ f-stops
Layer thickness:	25 µm

AGFACHROME CTprecisa 200

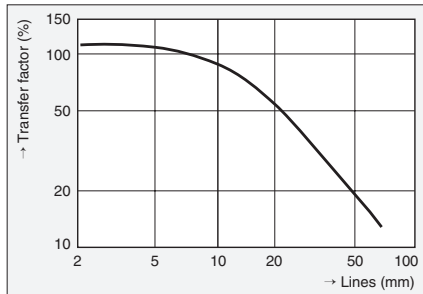
Spectral sensitivity:



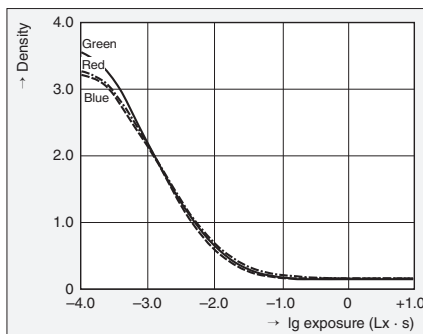
Spectral density:



Sharpness:



Colour density curves:



Speed:	ISO 200/24°
Granularity (x 1000):	RMS 12.0
Resolving power:	
Contrast 1000 : 1	120 lines/mm
Contrast 1.6 : 1	50 lines/mm
Exposure latitude:	-½ to +½ f-stops
Layer thickness:	27 µm

The Agfa professional range

This range covers a broad spectrum of colour negative, colour slide and black-and-white negative films. Depending on the section of the range, the available speeds range from ISO 15/25° to ISO 400/27° in the systems/formats 135, 120, 220, sheet film and bulk film.

Agfa professional films have qualities that are geared entirely towards the requirements of professional photographers. They are produced within extremely narrow tolerances, to ensure the maximum consistency as required by professionals.

Further details are given in the Professional film technical data brochure (PF).

Note

The information given here is based on the evaluation of typical products at the time of printing. Slight deviations are possible through production tolerances. Agfa-Gevaert is constantly endeavouring to improve the quality of the products, and therefore reserves the right to alter the product specifications without notice.

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Technical Data AF

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