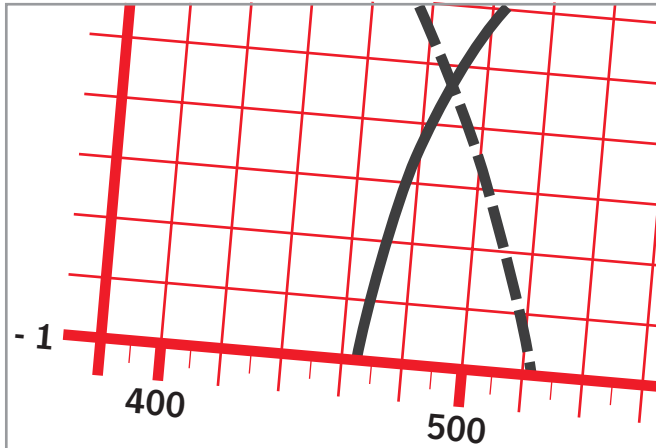


# TECHNICAL DATA

## RANGE OF AGFA STANDARD FILMS



- AGFACOLOR Vista 100**
- AGFACOLOR Vista 200**
- AGFACOLOR Vista 400**
- AGFACOLOR Vista 800**
- AGFACOLOR Ultra 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.

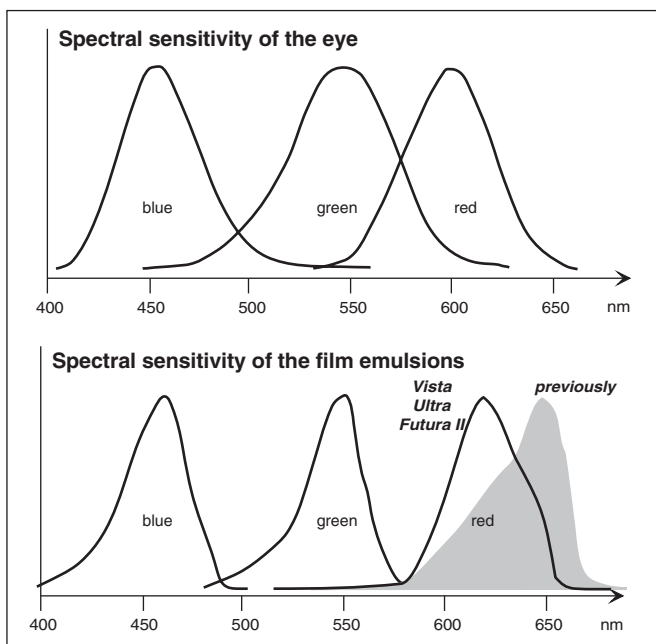
Agfa colour films are high-grade products for all applications in amateur photography. The speed ratings available range from the standard sensitivity, for normal and very bright conditions, up to high sensitivity for bad to critical lighting conditions or fast-moving subjects. The optimum material is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

## General comments

### AGFACOLOR Vista, Ultra and 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, Ultra 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 photochemical 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   | ×           | ×           |             |             |
| – Medium, e. g. overcast    |             | ×           | ×           |             |
| – Weak, e. g. dawn          |             |             | ×           | ×           |
| Moving subject*             |             |             |             |             |
| – Almost motionless         | ×           | ×           |             |             |
| – Medium-fast               |             | ×           | ×           |             |
| – Fast                      |             |             | ×           | ×           |
| Lens*                       |             |             |             |             |
| – High speed                | ×           | ×           |             |             |
| – Low speed                 |             | ×           | ×           | ×           |
| Flash (medium light output) |             |             |             |             |
| – Small rooms               | ×           | ×           |             |             |
| – Large rooms               |             |             | ×           | ×           |

\* 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 <sup>2</sup> / <sub>3</sub> 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 ( $V_\lambda$ )

### 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 ( $V_\lambda$ )
- Reading: diffused density 1.0  
48  $\mu\text{m}$  scanning aperture

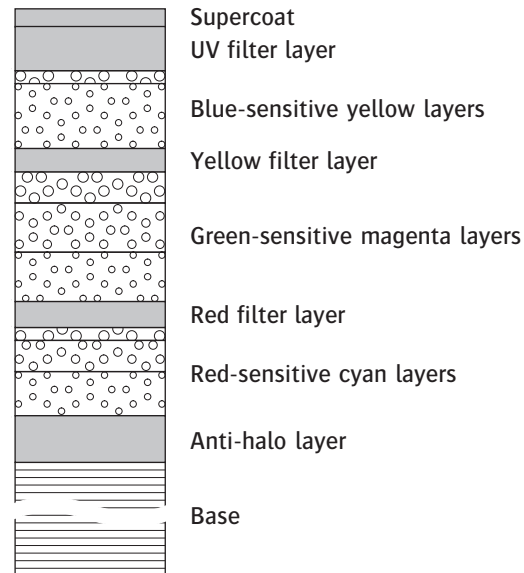
### Resolution

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  $\mu\text{m}$   
(Other films: see pages 5 - 8.)

### Emulsion base

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

## The Agfa standard film range

### AGFACOLOR negative films

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

### AGFACOLOR negative films for the Advanced Photo System

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

### AGFACHROME slide films

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

## 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 50/18° 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 F-PF-E (RANGE OF AGFA PROFESSIONAL FILMS).

## Characteristic values and curves of the various films

### Reciprocity effect

#### AGFACOLOR negative films

|                               | Vista 100            |     | Vista 200            |     | Vista 400            |     | Vista 800            |     | Ultra 100            |     |
|-------------------------------|----------------------|-----|----------------------|-----|----------------------|-----|----------------------|-----|----------------------|-----|
| exposure reading (s)          | $\frac{1}{10000}$ -1 | 10  | $\frac{1}{10000}$ -1 | 10  | $\frac{1}{10000}$ -1 | 10  | $\frac{1}{10000}$ -1 | 10  | $\frac{1}{10000}$ -1 | 10  |
| Exposure adjustment (f-stops) | 0                    | + ½ | 0                    | + 1 | 0                    | + 1 | 0                    | + ½ | 0                    | + ½ |

#### AGFACOLOR negative films for the Advanced Photo System

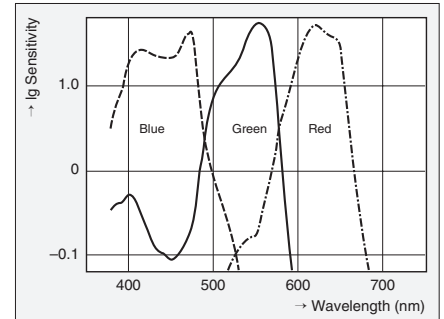
|                               | FUTURA II 200        |     | FUTURA II 400        |     |
|-------------------------------|----------------------|-----|----------------------|-----|
| exposure reading (s)          | $\frac{1}{10000}$ -1 | 10  | $\frac{1}{10000}$ -1 | 10  |
| Exposure adjustment (f-stops) | 0                    | + 1 | 0                    | + 1 |

#### AGFACHROME slide films

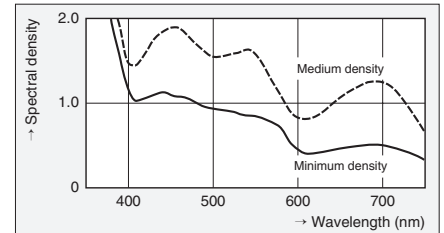
|                               | CTprecisa 100        |     | CTprecisa 200        |         |
|-------------------------------|----------------------|-----|----------------------|---------|
| exposure reading (s)          | $\frac{1}{10000}$ -1 | 10  | $\frac{1}{10000}$ -1 | 10      |
| Exposure adjustment (f-stops) | 0                    | + ½ | 0                    | + 1     |
| Filtration (CC filter)        | 0                    | 05Y | 0                    | 10Y 05C |

## AGFACOLOR Ultra 100

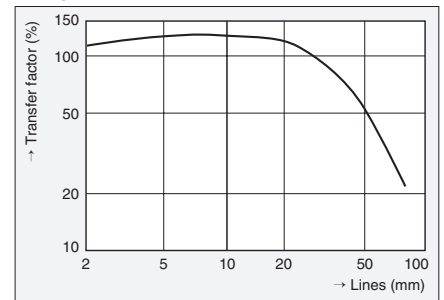
### Spectral sensitivity:



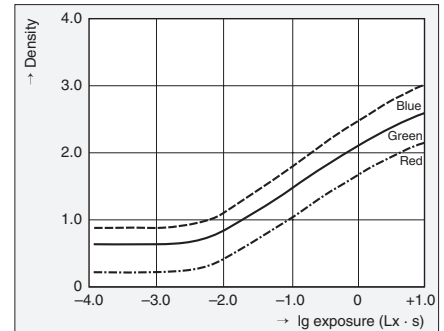
### Spectral sensitivity:



### Sharpness:



### Colour density curves:



### Speed:

ISO 100/21°

### Granularity (x 1000):

RMS 3.8

### Resolving power:

Contrast 1000 : 1

140 lines/mm

Contrast 1.6 : 1

60 lines/mm

### Exposure latitude:

-2 bis +3 f-stops

### Layer thickness:

16 µm

### DX coding:

Cartridge code:

135-36 = 00737 4

Negative code:

46 - 01

### Further markings:

Symbols:

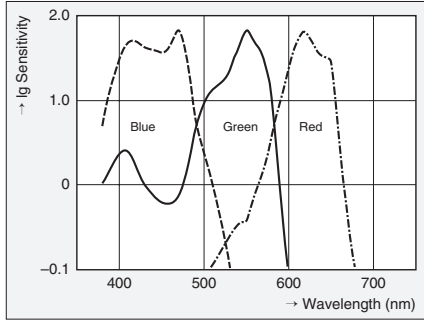
1 red triangle

Margin marks:

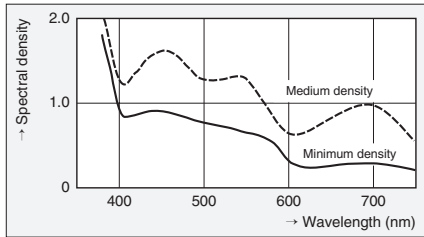
AGFA ULTRA 100

## AGFACOLOR Vista 100

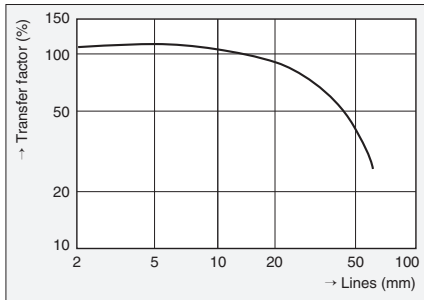
Spectral sensitivity:



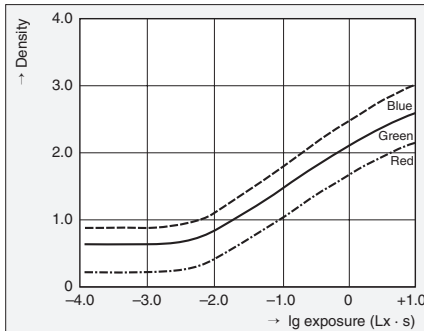
Spectral sensitivity:



Sharpness:



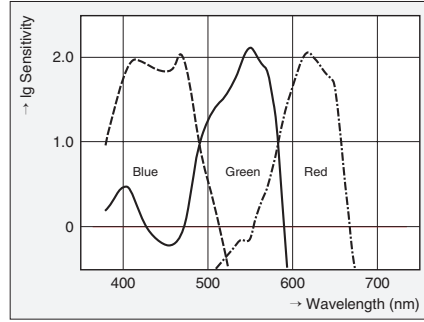
Colour density curves:



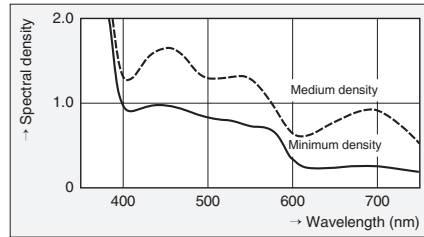
Speed: ISO 100/21°  
 Granularity (x 1000): RMS 4.0  
 Resolving power:  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 60 lines/mm  
 Exposure latitude: -2 bis +3 f-stops  
 Layer thickness: 16 µm  
 DX coding:  
 Cartridge code: 135-15 = 01813 6  
 135-27 = 01813 7  
 135-36 = 01813 4  
 Negative code: 113 - 05  
 Further markings:  
 Symbols: 4 red squares  
 Margin marks: AGFA VISTA 100

## AGFACOLOR Vista 200

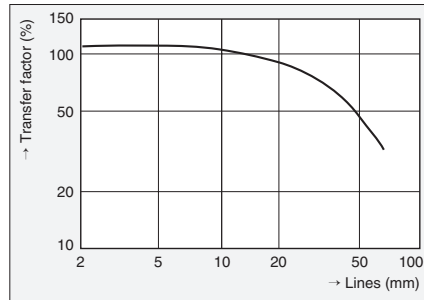
Spectral sensitivity:



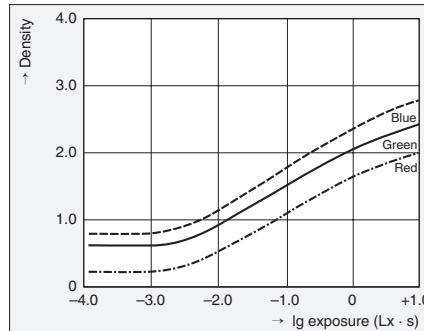
Spectral sensitivity:



Sharpness:



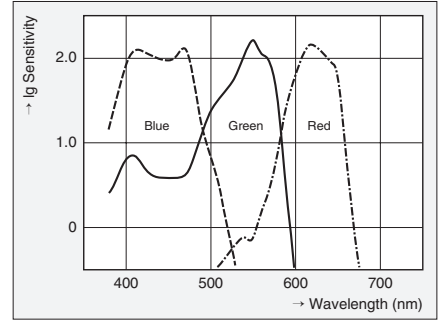
Colour density curves:



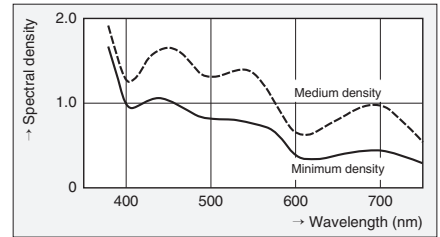
Speed: ISO 200/24°  
 Granularity (x 1000): RMS 4.3  
 Resolving power:  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Exposure latitude: -1½ bis +3 f-stops  
 Layer thickness: 18 µm  
 DX coding:  
 Cartridge code: 135-15 = 01814 6  
 135-27 = 01814 7  
 135-36 = 01814 4  
 Negative code: 113 - 06  
 Further markings:  
 Symbols: 4 red triangles  
 Margin marks: AGFA VISTA 200

## AGFACOLOR Vista 400

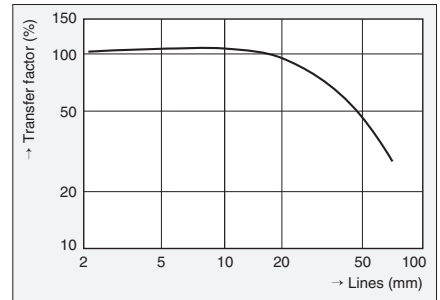
Spectral sensitivity:



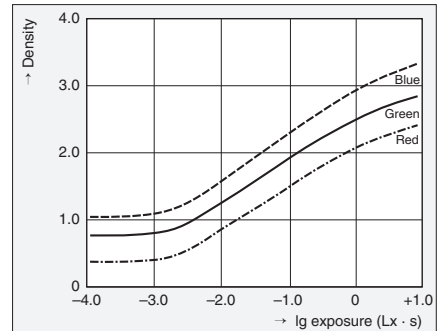
Spectral sensitivity:



Sharpness:



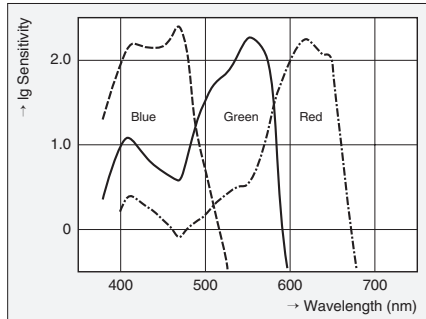
Colour density curves:



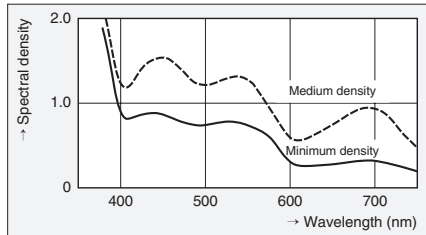
Speed: ISO 400/27°  
 Granularity (x 1000): RMS 4.5  
 Resolving power:  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 60 lines/mm  
 Exposure latitude: -1 bis +3 f-stops  
 Layer thickness: 19 µm  
 DX coding:  
 Cartridge code: 135-15 = 01818 6  
 135-27 = 01818 7  
 135-36 = 01818 4  
 Negative code: 113 - 10  
 Further markings:  
 Symbols: 2 red squares  
 Margin marks: AGFA VISTA 400

## AGFACOLOR Vista 800

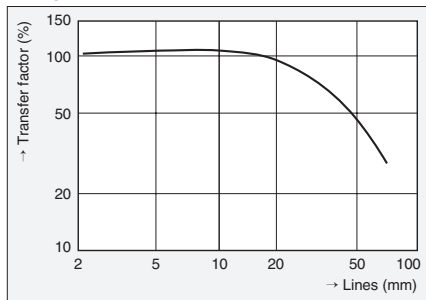
Spectral sensitivity:



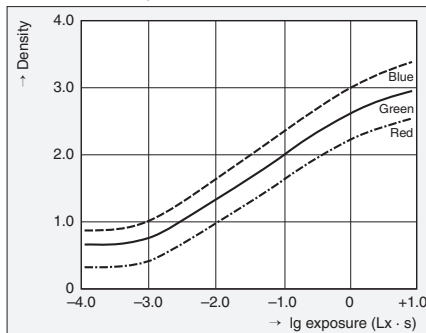
Spectral sensitivity:



Sharpness:



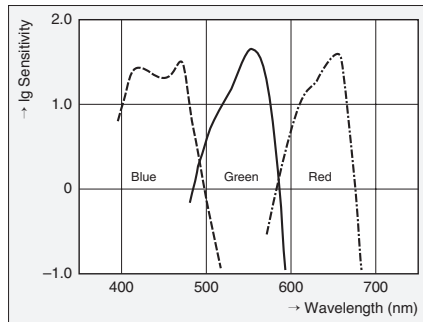
Colour density curves:



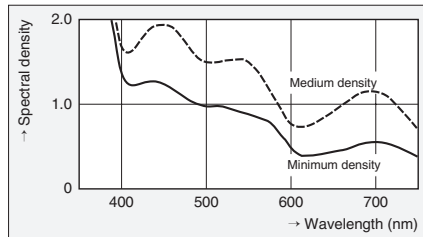
Speed: ISO 800/30°  
 Granularity (x 1000): RMS 5.0  
 Resolving power:  
 Contrast 1000 : 1 110 lines/mm  
 Contrast 1.6 : 1 40 lines/mm  
 Exposure latitude: -1 bis +3 f-stops  
 Layer thickness: 22 µm  
 DX coding:  
 Cartridge code: 135-15 = 01815 6  
 135-27 = 01815 7  
 135-36 = 01815 4  
 Negative code: 113 - 07  
 Further markings:  
 Symbols: 2 blue squares  
 Margin marks: AGFA VISTA 800

## AGFACOLOR FUTURA II 200

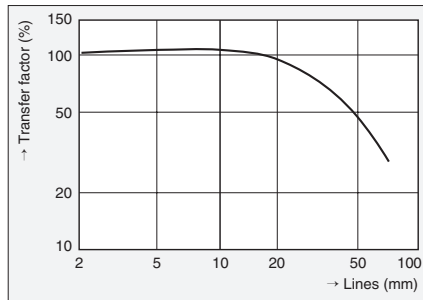
Spectral sensitivity:



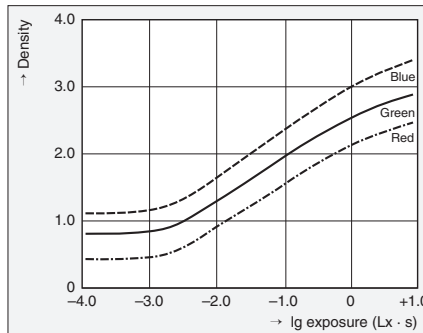
Spectral sensitivity:



Sharpness:



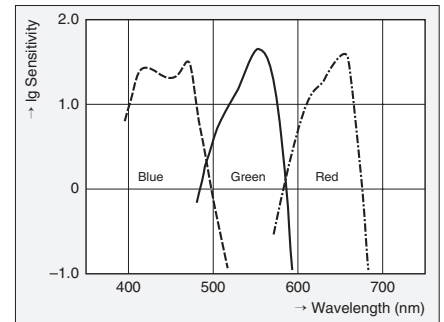
Colour density curves:



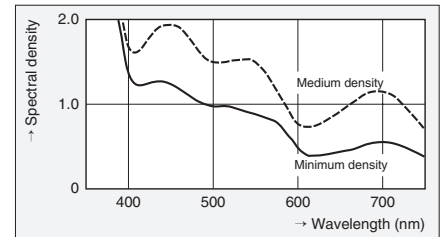
Speed: ISO 200/24°  
 Granularity (x 1000): RMS 4.3  
 Resolving power:  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Exposure latitude: -2 bis +3 f-stops  
 Layer thickness: 19 µm  
 DX coding: 44 - 06  
 Further markings:  
 Signiertext: AGFA FILM/FUTURA II 200

## AGFACOLOR FUTURA II 400

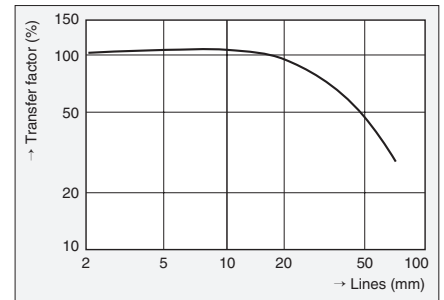
Spectral sensitivity:



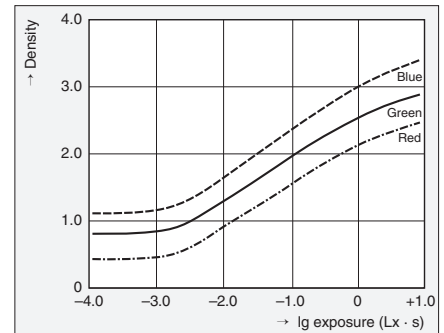
Spectral sensitivity:



Sharpness:



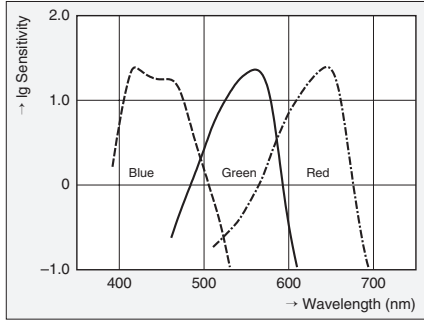
Colour density curves:



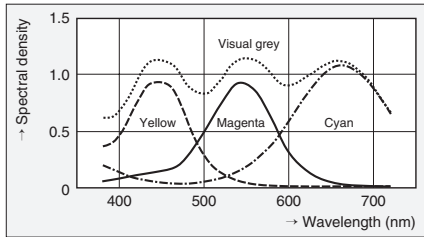
Speed: ISO 400/27°  
 Granularity (x 1000): RMS 4.5  
 Resolving power:  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Exposure latitude: -2 bis +3 f-stops  
 Layer thickness: 19 µm  
 DX coding: 44 - 10  
 Further markings:  
 Signiertext: AGFA FILM/FUTURA II 400

## AGFACHROME CTprecisa 100

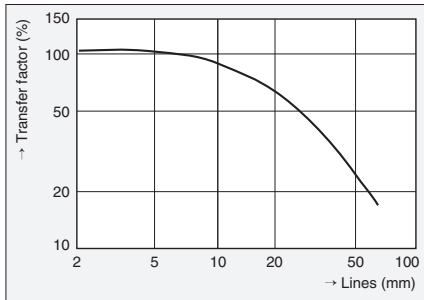
### Spectral sensitivity:



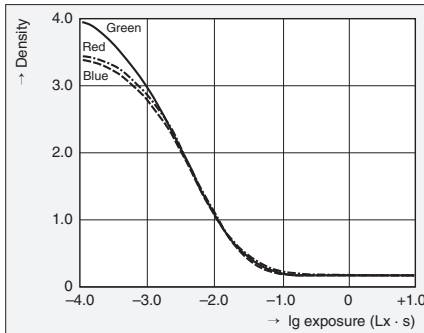
### Spectral sensitivity:



### Sharpness:



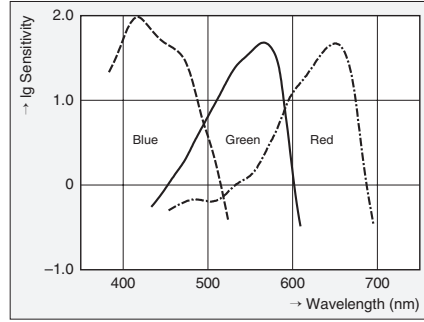
### Colour density curves:



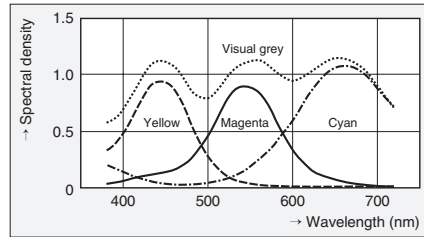
Speed: ISO 100/21°  
 Granularity (x 1000): RMS 10.0  
 Resolving power:  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Exposure latitude: -½ bis +½ f-stops  
 Layer thickness: 25 µm

## AGFACHROME CTprecisa 200

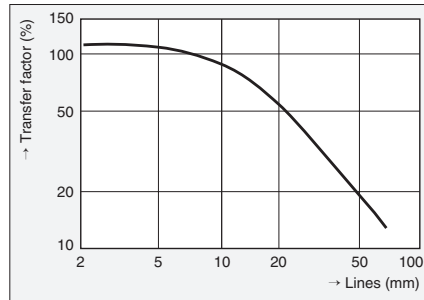
### Spectral sensitivity:



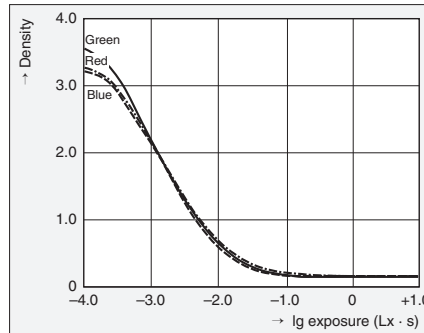
### Spectral sensitivity:



### 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 bis +½ f-stops  
 Layer thickness: 27 µm

## 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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