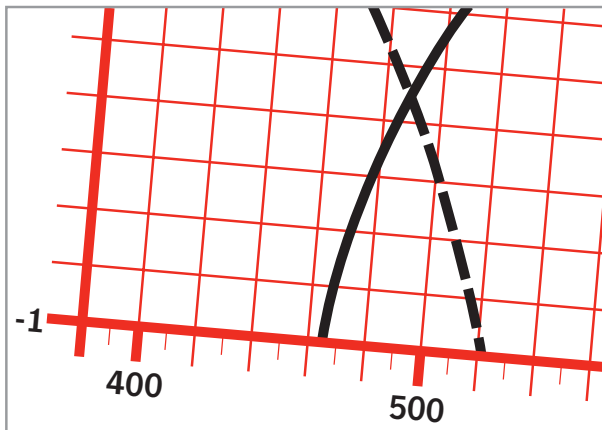


## Technical Data

### Agfa Professional Films



In professional photography and creative imaging the main considerations are quality, continuity and individuality. For these reasons the films for this area are measured by special standards. A film only satisfies these high standards if its performance is above-average. And it will only be accepted if it achieves this performance with extreme accuracy, consistency and with the maximum reliability. The wide range of professional applications calls for a correspondingly wide range of different emulsions, whose characteristics must be designed exactly for specific areas of use.

Agfa Professional films are specified to satisfy these exceptional standards. They combine the maximum quality with maximum reliability: optimum colour saturation and tonal definition, exact contrast ranges, exemplary grey balance, the finest detail rendition in the critical highlight and shadow areas, extreme sharpness and fine granularity, and uniform exposure requirements at short and long exposure times.

Two examples of extremely tight production tolerances:

speed:  $\pm 0.5 \text{ DIN} = \pm 1/6 \text{ stop}$   
colour balance:  $\pm 5 \text{ CC filter units}$

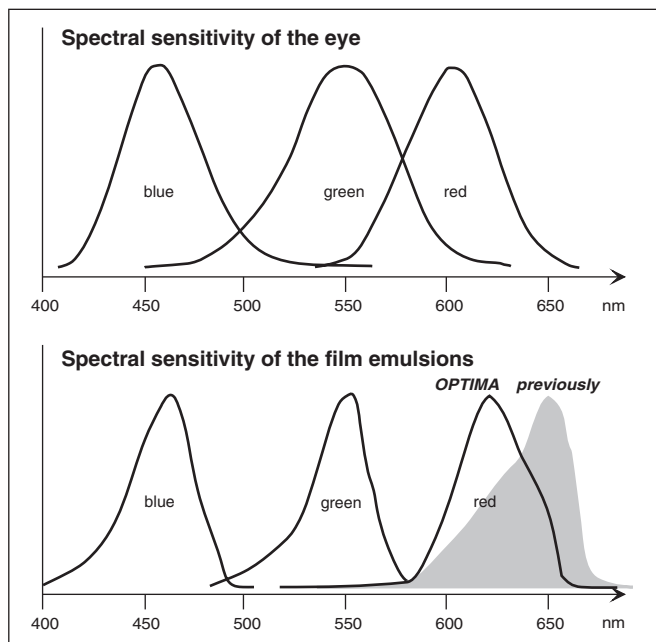
- ▶ Agfacolor Optima 100
- ▶ Agfacolor Optima 200
- ▶ Agfacolor Optima 400
- ▶ Agfacolor Portrait 160
- ▶ Agfachrome RSX II 50
- ▶ Agfachrome RSX II 100
- ▶ Agfachrome RSX II 200
- ▶ Agfapan APX 100
- ▶ Agfapan APX 400 \*
- ▶ Agfa Scala 200x

\* new generation (as of 2003)

## Agfacolor Optima 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 Optima 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).



## Agfa Professional film range

### Agfacolor negative films:

- Optima 100
- Optima 200
- Optima 400
- Portrait 160

### Agfachrome reversal films:

- RSX II 50
- RSX II 100
- RSX II 200

### Agfapan black and white negative films:

- APX 100
- APX 400

### Agfa black and white reversal films:

- Scala 200x

## Information on the performance characteristics of Agfa Professional films

### Sensitivity (speed)

Sensitivity is a measure of the response of a film to light exposure. The speed of films is based on the minimum exposure required for producing optimum tone reproduction. It is determined according to international standards for b&w, colour negative, and colour reversal films that specify the exposure, chemical processing and densitometer.

The figure given on the pack applies however to the exposure time range of 1 s to 1/10 000 s. Absolutely no sensitivity deviations occur with any Agfa films within this range.

### Reciprocity effect

The effect of an exposure of silver halide based films to light is the product of light intensity  $\times$  time of exposure, i.e.  $E = I \times T$ . This reciprocity law (first defined by Bunsen and Roscoe and also known as the Schwarzschild effect) holds that a 1/100 second exposure time at a light intensity of 1 lux will yield the same results as an exposure time of 1 second at 100 lux. However, at intensities significantly below or above the range in which reciprocity is maintained with a given film, more exposure will be required to achieve the same result. This is known as reciprocity failure. With colour films the failure of reciprocity tends to be different for the blue, green and/or red recording layers resulting in a shift in colour and colour contrast balance.

Appropriate information about reciprocity failure and the means for compensation through exposure adjustments and/or use of colour filters is given in the technical data section.

### Colour sensitivity

The spectral sensitivity of Agfa colour negative, colour reversal and black and white Professional films covers the entire range of visible radiation.

### Colour balance

Daylight has a completely different colour temperature to the artificial light produced by the halogen and incandescent lamps common in practice. (An exception is formed by the halogen metal vapour lamps with daylight characteristics, e.g. Osram HMI and Philips MSR lights for professional use.)

Colour films detect variations in the colour temperature much more accurately than the human eye, which receives an overall colour impression and largely balances the differences. For this reason colour films have to be sensitised to a certain kind of subject light, i.e. depending on the film type a particular colour temperature is fixed as reference white-point during manufacture.

All the Agfacolor and Agfachrome Professional films are matched to daylight, and are designed for the spectral radiation of mixed sunlight (colour temperature approx. 5500 Kelvin). Photography in this type of light does not require filtration, i.e. the results with all the films have an even, neutral colour balance.

If however the colour temperature of the subject light varies distinctly, this has to be counteracted for colour reversal films by camera correction filters, which prevent colour casts.

Colour temperature		Filter colour
too high	(> 5 500 K)	yellow-red
too low	(< 5 500 K)	blue

The exposure must also be adjusted depending on the filter strength.

## Light sources and filters

### Daylight

Practical correction examples	Filter	Correction
<u>High colour temperature, e. g. 5700 K</u> Landscapes, portraits with cloudy sky, cloudless mountainscapes	81 A	+ 1/8 stop
<u>Low colour temperature, e. g. 5 300 K</u> Landscapes, portraits at dawn or dusk	82 A	+ 1/3 stop

### Artificial light

Agfa Professional films can also be used in artificial light with suitable filtration.

Light source	Filter	Exposure correction (f-stops)
Photo lamps 3 400 K	80 B	+ 1 1/3
Photo lamps 3 200 K	80 A	+ 2

### Electronic flash

Electronic flash frequently works with a colour temperature of 5500 K (average daylight). There are however equipment and applications for which the flash tube colour temperature varies from this average figure. In these cases a test is advisable. Bear in mind that with longer exposure times the electronic flash light can be influenced by any other light sources present, so that a mixed-light situation is created.

### Fluorescent tubes

The spectral distribution of radiation of fluorescent light tubes varies quite considerably according to manufacturer, lamp type and lamp age. Exact filter information is therefore not possible. To ensure optimum colour rendition in spite of this, test shots are advisable.

The following correction figures can only serve as guides for the right filtration in practice, and apply to colour reversal films. They are based on results gained by experience. However the exposure times can be lengthened so much by the filtration that a further correction is necessary, due to the reciprocity effect.

Fluorescent lamp type	Filter	Exposure correction (f-stops)
Daylight (D)	50 R	+ 1
White (W)	40 M	+ 2/3
Cold-white (KW)	20 C + 40 M	+ 1
Warm-white	40 M + 10 Y	+ 1

### Mixed light

When you take pictures with different light sources, special attention must be paid to the colour temperature of the main light source for the correction filtration. The precise colour rendition and – if required – specific colour temperature effects should definitely be found with test shots.

## Other filters

### UV-blocking filter

Films are also sensitive to the UV content of daylight. UV-blocking filters are therefore often used to prevent colour shifts and unsharpness. This is unnecessary for all the Agfa Professional colour films, because a UV-blocking layer is already incorporated in the emulsion. An extra filter is nevertheless useful to protect the lens against physical damage.

### Polarisation filter

This filter is used firstly to cut down reflections, e.g. from glass or water (not metal), and secondly to create special effects (e.g. more vivid sky blue). A certain lengthening factor must be applied to the exposure, depending on the filter type (see the instructions for use of the camera or filter).

### Filters for black and white photography

All the correction and contrast filters standard in black and white photography can be used with Agfapan films.

Examples:

<i>Yellow filter</i>	To heighten cloud contrast
<i>Orange filter</i>	For clear long-distance views
<i>Red filter</i>	To “dramatise” an atmosphere

To compensate for the loss in speed caused by these filters, the manufacturer’s lengthening factors must be applied. Filters for black and white films are not suitable for colour photography. They cause strong colour shifts.

## Storage of unprocessed films

High temperatures and high atmospheric humidity can impair the photographic characteristics of a film material, in particular its speed and colour balance. Harmful fumes such as formalin or other fumes given off mainly by glues or cosmetics should definitely be avoided. Films are best stored in the original pack, because this protects them against humidity and fumes. Storage in a refrigerator (below +10 °C / 50 °F) or in a deep freezer (below 0 °C / 32 °F) is an effective way of stabilising films’ photographic properties for a very long time. However wait long enough for the film to come up to room temperature after it has been taken out of refrigeration, since otherwise condensation can form on the cold material. (Recommended acclimatisation time: with refrigerator approx. 2 hours, with deep freezer approx. 8 hours).

Cameras do not provide sufficient protection against these harmful effects. It is therefore advisable to keep a camera cool, dry and airtight when a film is loaded (if necessary in a polyethylene bag).

Once a film has been exposed, the above precautions for unexposed films are even more important. Exposed films should be kept cool and dry, or even better processed as soon as possible after exposure. This ensures that these effects have no time to take place.

## Directions for X-ray inspections

The basic rule is that films are sensitive to X-rays, and this sensitivity increases with the film's sensitivity. The X-ray inspection equipment used on many airports marked "Film Safe" does not affect films under normal circumstances. Nevertheless, for safety's sake films should not be handed in as luggage but kept in hand luggage. In cases of doubt a visual inspection is preferable.

## Processing

Film type	Process	Compatible with process	Process data sheet
Agfacolor negative films	AP 70	C-41	C-70, C-7172
Agfachrome slide films	AP 44	E-6	C-44
Agfapan B/W films	For developing methods, types etc. see data sheet		C-SW16
Agfa Scala 200x B/W slide film	Special Scala process in authorised Scala labs only (see internet: <a href="http://www.agfa.com">www.agfa.com</a> )		

The Technical Data sheets listed contain detailed information on the processing of the relevant films.

## Pushed/pulled processing of slide films

If the first development time is changed, the photographic speed also changes. Lengthening the time leads to an increase in speed (so-called pushing), shortening the time reduces it (pulling). This is a correction method often used in professional photography, with the aim of a fine adjustment of the colour density or a deliberate change in speed.

The Agfachrome RSX II Professional films feature exceptionally good push/pull stability. Up to a speed adjustment of  $\pm 1$  stop (1), the neutrality of colour rendition is preserved in full. Even an increase in speed of up to two stops only has a very slight effect on the colour balance.

## Agfa Scala 200x Professional

With the standard Scala process: ISO 200/24°.

The speed of the Agfa Scala 200x can be varied in steps by pushing or pulling the process. The contrast, maximum density and granularity simultaneously vary in comparison to the standard process.

Step	Push 1	Push 2	Push 3	Pull 1
Speed (ISO)	400/27°	800/30°	1600/33°	100/21°
Contrast	increasingly steeper			flatter
Maximum density	decreasing			increasing
Granularity	increasingly coarse-grained			finer

## Applications

Varying the speed and the contrast is useful in many fields.

### Pushed processing

- To increase the speed:
  - with poor lighting / available light
  - with lenses with long focal lengths and / or low power
  - with fast-moving subjects
- To steepen the contrast:
  - for dramatic effects

### Pulled processing

- To decrease the speed:
  - for higher maximum density
  - for finer granularity (–10 % at ISO 100/21°)
- To flatten the contrast:
  - for reproductions of X-rays
  - for duplicates of BW negatives and original Scala transparencies

## Storage of processed films

The same precautions apply to processed films:

- under 25° C
- 30 to 60 % relative humidity
- protected from fumes
- darkness

## Further processing

### Evaluating negatives

Negatives of colour and black and white films can be appraised in basically the same way. The most important criterion is the shadow area. Thin coverage in comparison to the mask coloration should be apparent on colour negatives.

### Retouching

In portrait photography and in some other areas as well, the retouching of processed film material is common. The film types suitable for this treatment incorporate a retouchable back (only roll film and sheet film), i.e. they are suitable for pencil and liquid retouching (retouching paints). Only the Agfacolor XPS 160 roll film has a retouchable emulsion.

### Evaluating slides

The colour balance of Agfachrome Professional films is designed for the viewing light specified in ISO 3664. The main features of this standard:

- colour temperature 5000 K
- mean luminance 1400 cd/m<sup>2</sup>
- uniformity of luminance at least 75 %

Comparisons should be made in principle on one and the same light box, because there may be considerable variations in light colour and intensity between different boxes.

### Use of slide films in scanners

All Agfachrome Professional films are reprographically compatible. The high-grade photographic characteristics of this material are therefore transferred completely, even if only the standard scanner setting is used.

## Specific information on the product

The charts and figures shown on page 6 to 9 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 maintained tolerances.

### Spectral sensitivities

The chart indicates the colour sensitivity of an unprocessed film.

Reference: – equal-energy spectrum

Reading density: – 1.0 above minimum density

### Absorption of the emulsion dyes

The chart indicates the relative effect of a processed film on transmitted light. For colour negative films this is a measure for the spectral sensitisation of the following printing material, for colour slide films it is a measure for the viewer's eye under defined standard light conditions.

Reference: – neutral subject with medium brightness

– minimum density

### Colour density curves

The chart indicates the dye densities of a processed film in relation to the exposure.

Reference: – exposure: daylight 1/100 second

– process: AP 70/C-41 and AP 44/E-6

– densitometry: Status A and Status M

### Sharpness

This is an MTF (Modulation Transfer Function) chart, which indicates the image sharpness. The higher the transfer factor in %, the lower the transfer losses are.

Reference: – exposure: daylight

– densitometry: visual filter ( $V_\lambda$ )

### Granularity

Granularity is the irregular density structure of an exposed and processed area of film. The figure is based on the RMS (root-mean-square) measuring method. The smaller the figure is, the finer grain the film has. The RMS measuring method is intended to match an instrumentally found figure with the visual perception of the film granularity.

Reference: – exposure: daylight

– densitometry: visual filter ( $V_\lambda$ )

– measurement: diffuse density 1.0;  
48  $\mu\text{m}$  reading aperture

### Resolving power

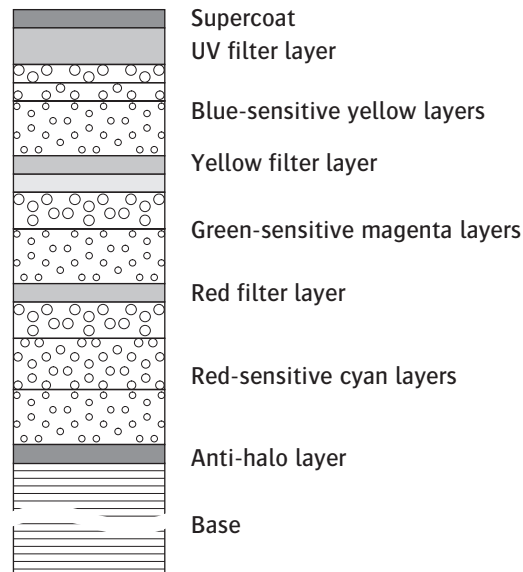
This is given as a figure in the appendix. It indicates the resolution limit in the rendition of adjacent finest details (e.g. lines in a matrix).

The resolving power is a purely visual criterion, which is greatly influenced by the contrast range.

Reference: – lines per mm at contrast range 1.6 : 1 or 1000 : 1

## Layer design

The continuous further development of coating technology permits thinner, and simultaneously more layers. The thinner layers enhance the sharpness, and the extra layers have separating, blocking, protecting and filtering functions. They optimise not only the colour rendition, but also the sharpness and storage life as well. A schematic representation is shown on right, taking the Optima 100 as an example.



Total layer thickness (without base): 16  $\mu\text{m}$   
(Other films: see pages 6 to 9)

### Emulsion base

The film base is made of acetyl cellulose or polyester. The type and thickness of the base are given on pages 6 to 9.

## Film identification

### Process colour coding on 35 mm films

Margin bars on the cartridge

- red Process AP 70/C-41
- blue Process AP 44/E-6
- grey B/W negative processing

### Process colour coding on roll films

Overprint at end of backing paper

- yellow Process AP 70/C-41
- blue Process AP 44/E-6
- black B/W negative processing

### Exposed margin marks

1. Film type + emulsion number

2. Frame numbering

- On 35 mm films after 2 blank exposures continuous frame numbering starting with "1" and "1A" up to 12A, 24A or 36A
- On roll films continuous double-sided frame numbering from 1-12 or 41-61 (120 roll film), or 1-25 or 41-83 (220 roll film).

3. Symbol marks on colour negative films

Symbols are exposed on to 35 mm and roll films to identify the film generation.

- Oprima 100 4 red squares
- Oprima 200 4 red triangles
- Oprima 400 2 red squares
- Portrait 160 4 green squares

### Notch coding on sheet films

The film type can be identified from the type of notching. The emulsion side is facing the viewer when the notching in upright format is at top right.

Agfachrome RSX II 100



Agfapan APX 100



Agfa Scala 200x



## Reciprocity effect

### Colour negative films

	Agfacolor Optima 100			Agfacolor Optima 200		
Exposure reading (seconds)	$1/10\ 000-1$	10	100	$1/10\ 000-1$	10	100
Exposure adjustment (f-stops)	0	+½	+1½	0	+1	+2

	Agfacolor Optima 400			Agfacolor Portrait 160		
Exposure reading (seconds)	$1/10\ 000-1$	10	100	$1/10\ 000-1$	10	100
Exposure adjustment (f-stops)	0	+1	+2	0	+1	+2

### Colour slide films

	Agfachrome RSX II 50			Agfachrome RSX II 100		
Exposure reading (seconds)	$1/10\ 000-1$	10	100	$1/10\ 000-1$	10	100
Exposure adjustment (f-stops)	0	+½	+1	0	+½	+1
Filtration (CC filter)	0	05B	10B	0	05B	10B

	Agfachrome RSX II 200		
Exposure reading (seconds)	$1/10\ 000-1$	10	100
Exposure adjustment (f-stops)	0	+1	+2
Filtration (CC filter)	0	075Y	15Y 05C

### B/W negative films

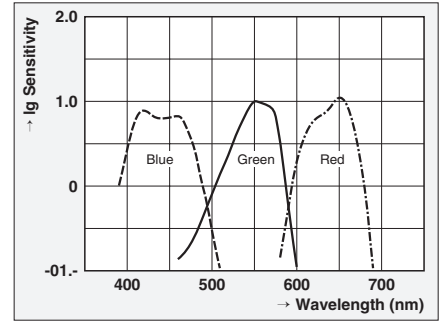
	Agfapan APX 100				Agfapan APX 400			
Exposure reading (seconds)	$1/10\ 000-1/2$	1	10	100	$1/10\ 000-1$	1	10	100
Exposure adjustment (f-stops)	0	+1	+2	+3	0	+1	+2	+3
Developing adjustment (%)	0	-10	-25	-35	0	-10	-25	-35

### B/W slide film

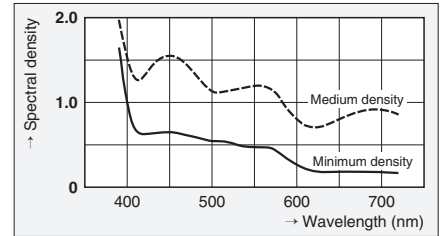
	Agfa Scala 200x			
Exposure reading (seconds)	$1/10\ 000-1/2$	1	10	100
Exposure adjustment (f-stops)	0	+½	+1	+2

## Agfacolor Portrait 160

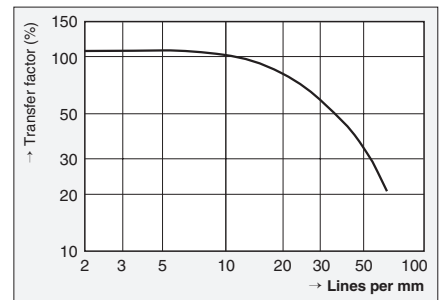
### Spectral sensitivity



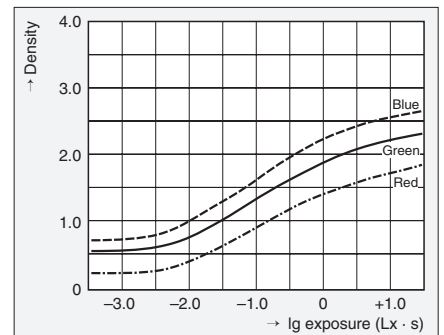
### Spectral density



### Sharpness



### Colour density curves



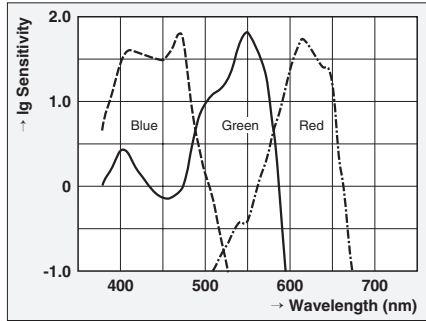
Speed:	ISO 160/23°
Granularity (x 1000):	RMS 3.5
Resolving power	
Contrast 1000 : 1	150 lines/mm
Contrast 1.6 : 1	60 lines/mm
Layer thickness:	18 µm
Film base:	135 = 120 µm
	120/220 = 95 µm

### DX coding

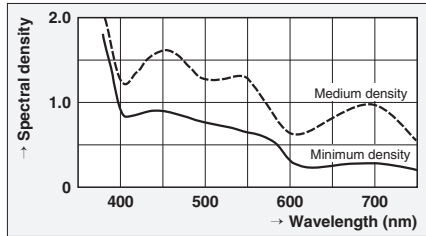
Cartridge code:	135-24 = 00786 3	
	135-36 = 00786 4	
Negative code:		49 - 02

## Agfacolor Optima 100

### Spectral sensitivity



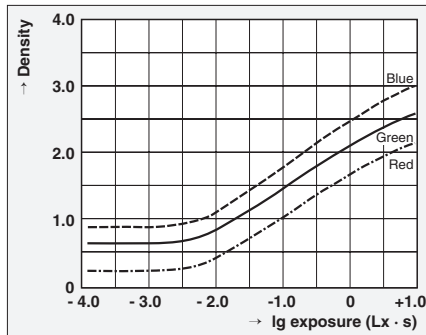
### Spectral density



### Sharpness



### Colour density curves

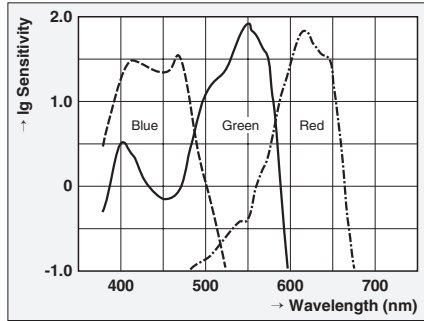


Speed: ISO 100/21°  
 Granularity (x 1000): RMS 4.0  
 Resolving power  
 Contrast 1000 : 1 140 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Layer thickness: 16 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm

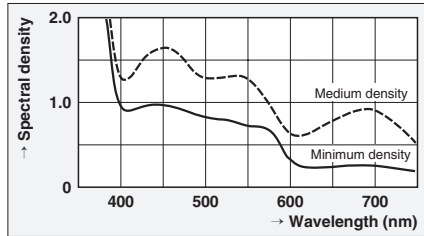
DX coding  
 Cartridge code: 135-24 = 00798 3  
 135-36 = 00798 4  
 Negative code: 49 - 14

## Agfacolor Optima 200

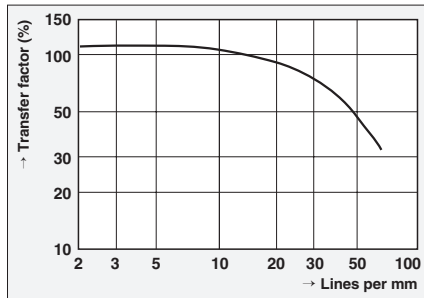
### Spectral sensitivity



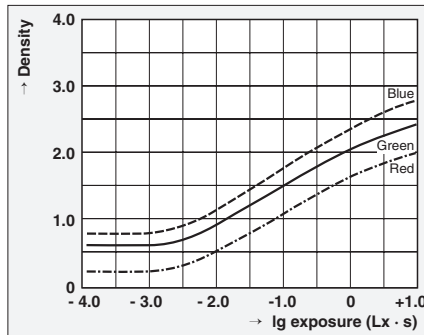
### Spectral density



### Sharpness



### Colour density curves

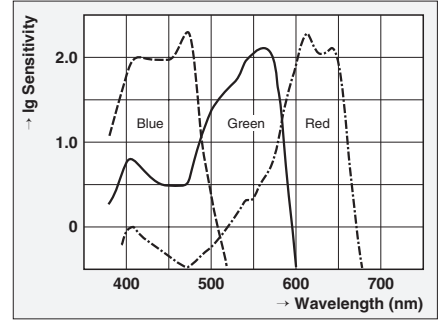


Speed: ISO 200/24°  
 Granularity (x 1000): RMS 4.3  
 Resolving power  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Layer thickness: 18 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm

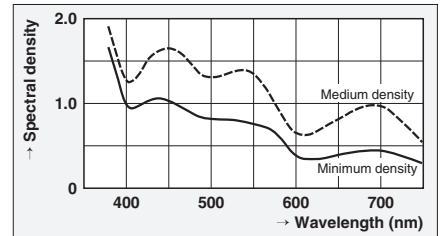
DX coding  
 Cartridge code: 135-24 = 00799 3  
 135-36 = 00799 4  
 Negative code: 49 - 15

## Agfacolor Optima 400

### Spectral sensitivity



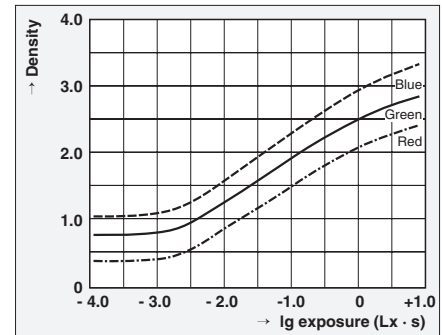
### Spectral density



### Sharpness



### Colour density curves

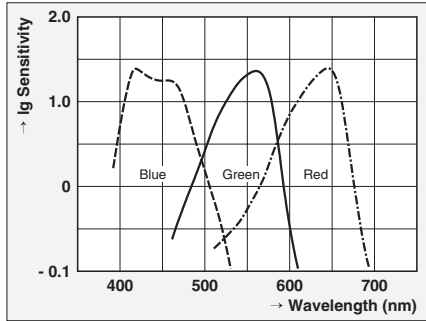


Speed: ISO 400/27°  
 Granularity (x 1000): RMS 4.5  
 Resolving power  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Layer thickness: 19 µm  
 Film base: 135 = 120 µm  
 120/220 = 95 µm

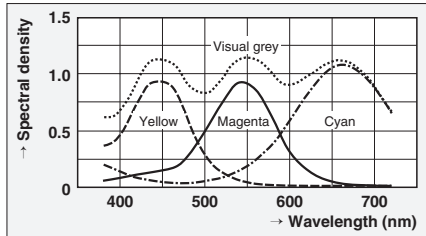
DX coding  
 Cartridge code: 135-24 = 00794 3  
 135-36 = 00794 4  
 Negative code: 49 - 10

## Agfachrome RSX II 50

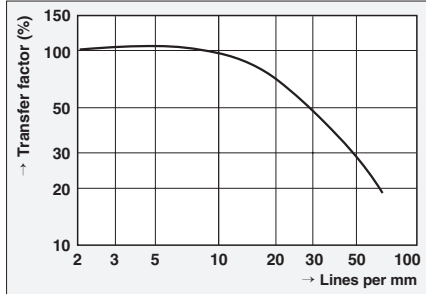
### Spectral sensitivity



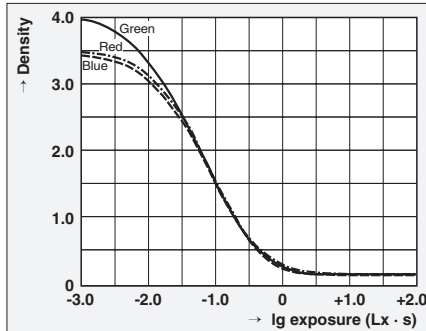
### Spectral density



### Sharpness



### Colour density curves



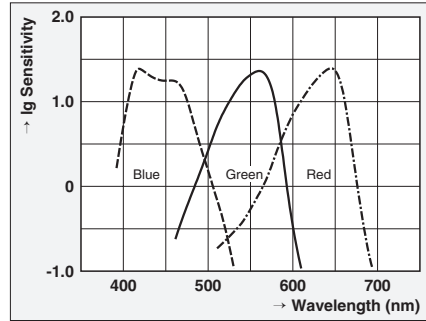
Speed: ISO 50/18°  
 Granularity (x 1000): RMS 10.0  
 Resolving power  
 Contrast 1000 : 1 135 lines/mm  
 Contrast 1.6 : 1 55 lines/mm  
 Layer thickness: 25 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm

### DX coding

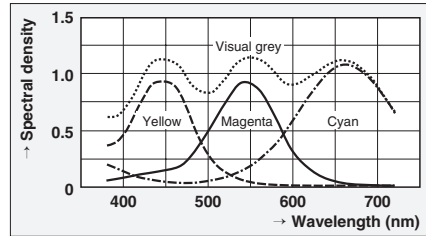
Cartridge code: 135-36 = 00089 4

## Agfachrome RSX II 100

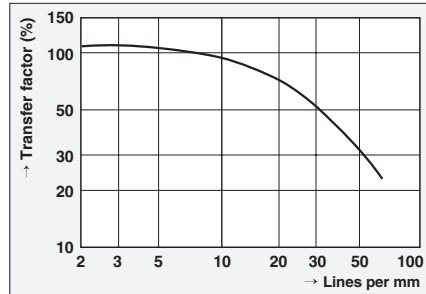
### Spectral sensitivity



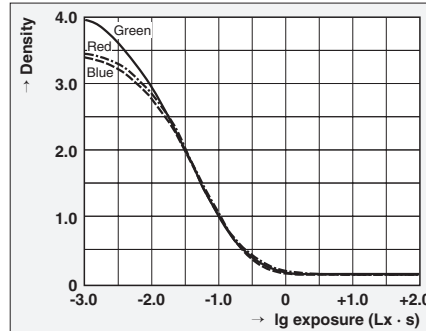
### Spectral density



### Sharpness



### Colour density curves



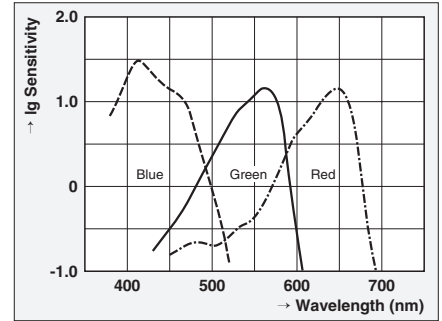
Speed: ISO 100/21°  
 Granularity (x 1000): RMS 10.0  
 Resolving power  
 Contrast 1000 : 1 130 lines/mm  
 Contrast 1.6 : 1 50 lines/mm  
 Layer thickness: 25 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm  
 sheet film = Acetate 190 µm

### DX coding

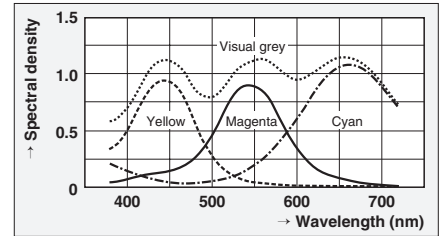
Cartridge code: 135-36 = 00057 4

## Agfachrome RSX II 200

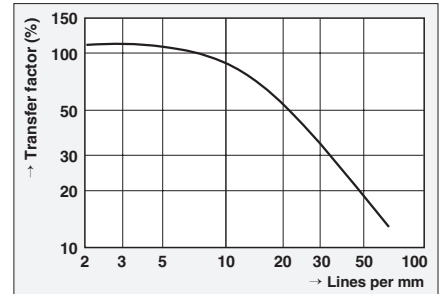
### Spectral sensitivity



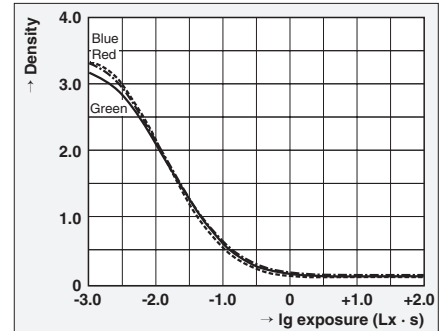
### Spectral density



### 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  
 Layer thickness: 27 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm

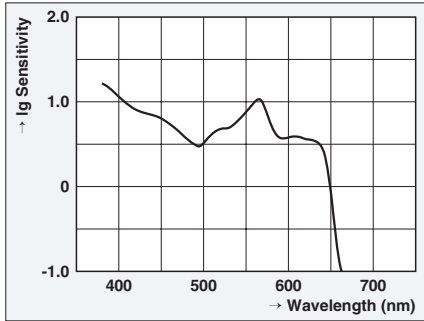
### DX coding

Cartridge code: 135-36 = 00118 4

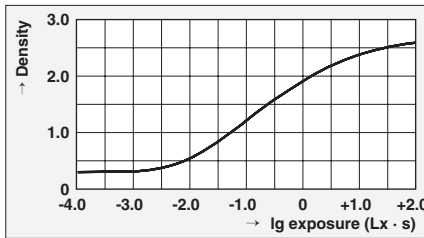


## Agfapan APX 100

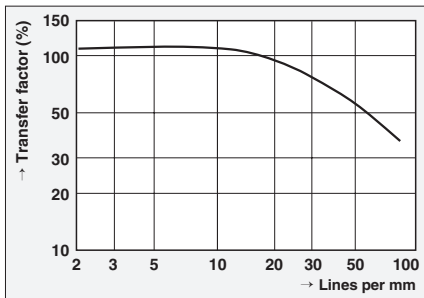
### Spectral sensitivity



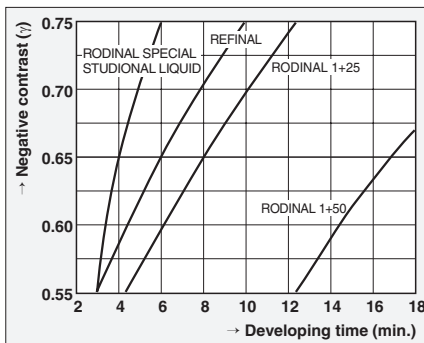
### Characteristic curve



### Sharpness



### Gamma-time curves



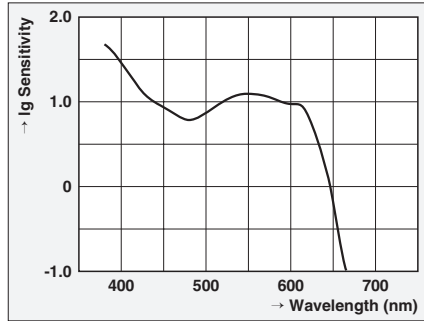
Speed: ISO 100/21°  
 Granularity (x 1000): RMS 9.0  
 Resolving power: 150 lines/mm  
 Contrast 1000 : 1  
 Layer thickness: 7 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm  
 sheet film = PET 175 µm

### DX coding

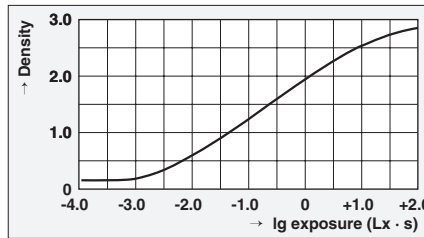
Cartridge code: 135-24 = 00023 3  
 135-36 = 00023 4

## Agfapan APX 400

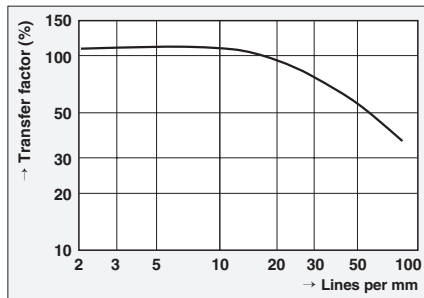
### Spectral sensitivity



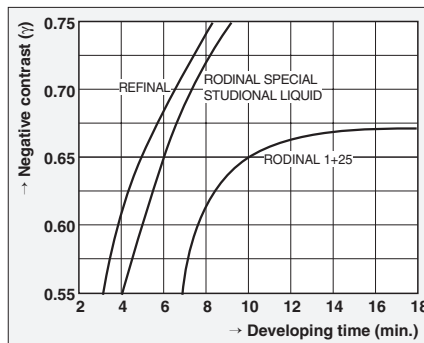
### Characteristic curve



### Sharpness



### Gamma-time curves



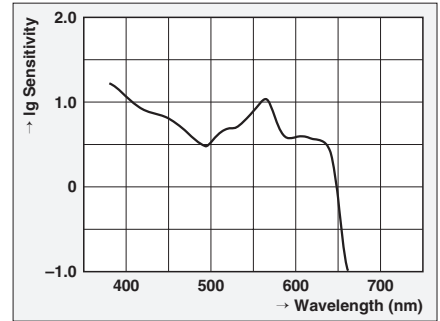
Speed: ISO 400/27°  
 Granularity (x 1000): RMS 14.0  
 Resolving power: 110 lines/mm  
 Contrast 1000 : 1  
 Layer thickness: 10 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm

### DX coding

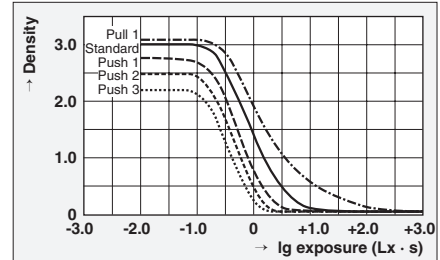
Cartridge code: 135-36 = 00019 4

## Agfa Scala 200x

### Spectral sensitivity



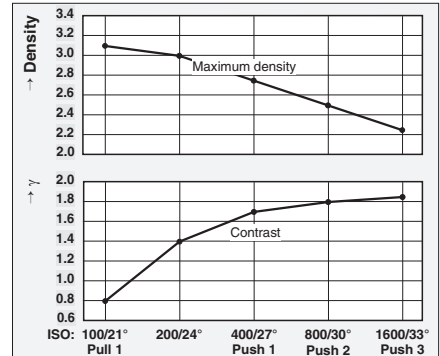
### Characteristic curves



### Sharpness



### Contrast/maximum density with pushed/pulled processing



Speed: ISO 200/24°  
 Granularity (x 1000): RMS 11.0  
 Resolving power (Reference: ISO 200°): 120 lines/mm  
 Contrast 1000 : 1  
 Contrast 1.6 : 1  
 Layer thickness: 50 lines/mm  
 Layer thickness: 7 µm  
 Film base: 135 = 120 µm  
 120 = 95 µm  
 sheet film = PET 175 µm

### DX coding

Cartridge code: 135-36 = 00024 4

## General instructions of B/W film processing

It is a well-known fact that the results of development depend not only on the time, temperature and type of solution, but also on the process method used (tray, small tank, drum, large tank). To obtain reproducible results, the following instructions should be followed:

- For processing in small tanks, agitate (tilt) the tank continuously for the first minute, and then tilt every thirty seconds. Avoid developing times under three minutes.
- For processing in drums (rotary process), choose a speed greater than 30 rpm (changing the direction of rotation). Avoid developing times under three minutes.

The development times given below are guides only, and are based on an average contrast of  $\gamma = 0.65$ . Variations are possible, depending on the individual processing conditions.

### Processing Agfapan APX 100

Developer	Developing time in min.			
	18 °C	20 °C	22 °C	24 °C
<b>Processing in small tanks/trays</b>				
Refinal	8	6	4 ½	4
Rodinal 1 + 25	10	8	6	5
Rodinal 1 + 50	20	17	14	12
Rodinal Special	5	4	3	–
Studional Liquid	5	4	3	–
<b>Processing in tanks</b>				
Atomal FF	10	8	6	5
Refinal	9	7	5	4

### Exposure index Agfapan APX 100

Developer	Time*	Speed
Refinal	6 min.	ISO 125/22°
Rodinal 1 + 25	8 min.	ISO 125/22°
Rodinal 1 + 50	17 min.	ISO 160/23°
Rodinal Special	4 min.	ISO 125/22°
Studional Liquid	4 min.	ISO 125/22°

\*) Processing in small tank at 20 °C

### Processing Agfapan APX 400

Developer	Developing time in min.			
	18 °C	20 °C	22 °C	24 °C
<b>Processing in small tanks/trays</b>				
Refinal	7	5	4	3
Rodinal 1 + 25	11 ½	10	9	8
Rodinal 1 + 50	–	30	27 ½	25
Rodinal Special	7	6	4 ½	4
Studional Liquid	7	6	4 ½	4
<b>Processing in tanks</b>				
Tetenal Ultrafin Plus		16		
Kodak T-MAX		12		
Kodak D76/Ilford ID11		12		
<b>Processing in tanks</b>				
Atomal FF	12 ½	10	6	6
Refinal	6 ½	5	4	3

### Exposure index Agfapan APX 400

Developer	Time*	Speed
Refinal	5 min.	ISO 400/27°
Rodinal 1 + 25	10 min.	ISO 320/26°
Rodinal 1 + 50	30 min.	ISO 320/26°
Rodinal Special	6 min.	ISO 400/27°
Studional Liquid	6 min.	ISO 400/27°

\*) Processing in small tank at 20 °C

Further processing details are given in the Technical Data Sheet P-SW16.

## ISO 9001 quality certificate

Since 1994 the photo-chemical production department of Agfa-Gevaert AG has possessed the ISO 9001 certificate for its quality management system, as awarded by Lloyd's Register for Quality Assurance Ltd. (LRQA), London.

The ISO 9001 standard defines the principles of quality assurance, including concepts and criteria for customer-based quality planning, specifications for each stage of production, and also systems for error prevention and for the continuous enhancement of production techniques.

Comprehensive documentation of all the tests and their regular monitoring by internal and external auditors ensures that the product quality is consistently based on objectively defined criteria, and conforms at all times to a reproducible standard.

## Summary of the Agfa Professional film range

	Agfacolor				Agfachrome			Agfapan		Agfa
	Optima 100	Optima 200	Optima 400	Portrait 160	RSX II 50	RSX II 100	RSX II 200	APX 100	APX 400	Scala 200x
ISO	100/21°	200/24°	400/27°	160/23°	50/18°	100/21°	200/24°	100/21°	400/27°	200/24°
<b>35 mm films</b>										
135-24	•	•	•	•				•		
135-36	•	•	•	•	•	•	•	•	•	
135-36 MP 5										•
135-36 MP 50								•	•	
17 m DP ***								•	•	
30.5 m DP ***						•		•	•	
<b>Roll films</b>										
120	•	•	•	•	•	•	•	•	•	
120 MP 5	•			•		•				•
120 MP 50	•			•		•				
220 MP 5			•	•						
<b>Sheet films *</b>										
6.5 × 9 cm, 2½ × 3½"								•		
9 × 12 cm, 3½ × 3¾"						•		•		
10.2 × 12.7 cm, 4 × 5"						•**		•		•
13 × 18 cm, 5⅛ × 7⅛"						•		•		
20.3 × 25.4 cm, 8 × 10"						•				

Ranges vary from country to country.

\* Agfachrome, Scala: 10-sheet packs  
Agfapan: 25-sheet packs

\*\* Also available in 50-sheet packs

\*\*\* DP = bilateral perforation

### Note

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

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**Technical Data**      **F-PF-E4**  
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