

# MACO EAGLE COLOR SURVEILLANCE FILM

Panchromatic negative colour film for traffic and surveillance

**MACO EAGLE COLOR SURVEILLANCE FILM** is a panchromatic negative maskless colour film with high colour saturation, designed for traffic surveillance . It is also suitable for industrial applications requiring a high speed film whereby images are scanned from the film. This film gives excellent definition and lower granularity than a masked film with the same photographic speed.

Thickness of the polyester base: 100µm or 63µm for high roll capacity.

Total film thickness: 137µm/100µm

## Applications

The film is designed for surveillance photography and traffic control with a variety of different cameras . Traffic and surveillance films are available as 35mm roll films on core or reel -or mounted in F-135 cartridge (regular 36 exposure 35mm cartridge) . Processing is done with Agfa A SP 70 process or the equivalent C41.

**MACO EAGLE COLOR SURVEILLANCE FILM** can be copied onto Agfa's RaptoneC1 - C2 aerial colour paper or onto Agfa's negative colour copying films Avitone CP 94 and Avitone CP 70. The film is designed for use with most traffic control cameras.

The absence of a mask allows for an improved signal/noise ratio and hence a more grain-free digital image after the scanning. This is particularly of interest to avoiding noise in highlight areas.

For traffic control applications a better signal/noise ratio means a better reading rate for automated license plate recognition and a better human readability.

The absence of a color mask also makes scanning easier and shortens the scanning cycle. **MACO EAGLE COLOR SURVEILLANCE FILM** maskless film can be used for a range of industrial applications for ground photography, security cameras or traffic control cameras.

## Characteristics

**MACO EAGLE COLOR SURVEILLANCE FILM** offers outstanding characteristics:

- Panchromatic sensitivity up to 650 nm.
- Minimum granularity, high definition and high speed.
- Thin layer technology brings higher sharpness by containing the light decay and supporting the "edge" effect.
- Excellent image quality: **MACO EAGLE COLOR SURVEILLANCE FILM** is built using multilayer technology and uses high inter -imaging effect for best image colour saturation.
- Wide exposure latitude limits the risk for bad exposure.
- Outspoken anti- static characteristics , before and after film processing.
- Back layer designed for best reduction of Newton rings.
- Durable top coat and back layer to protect the film against scratches.
- No Schwarzschild effect for shutter speeds ranging from 1/1,000 up to 1 second.

## Photographic Information

### Speed

ISO 400/27, A SA 400, DIN 27 for processing in Agfa ASP 70 process at 37.8 °C/100 °F for 3 min 17 s.

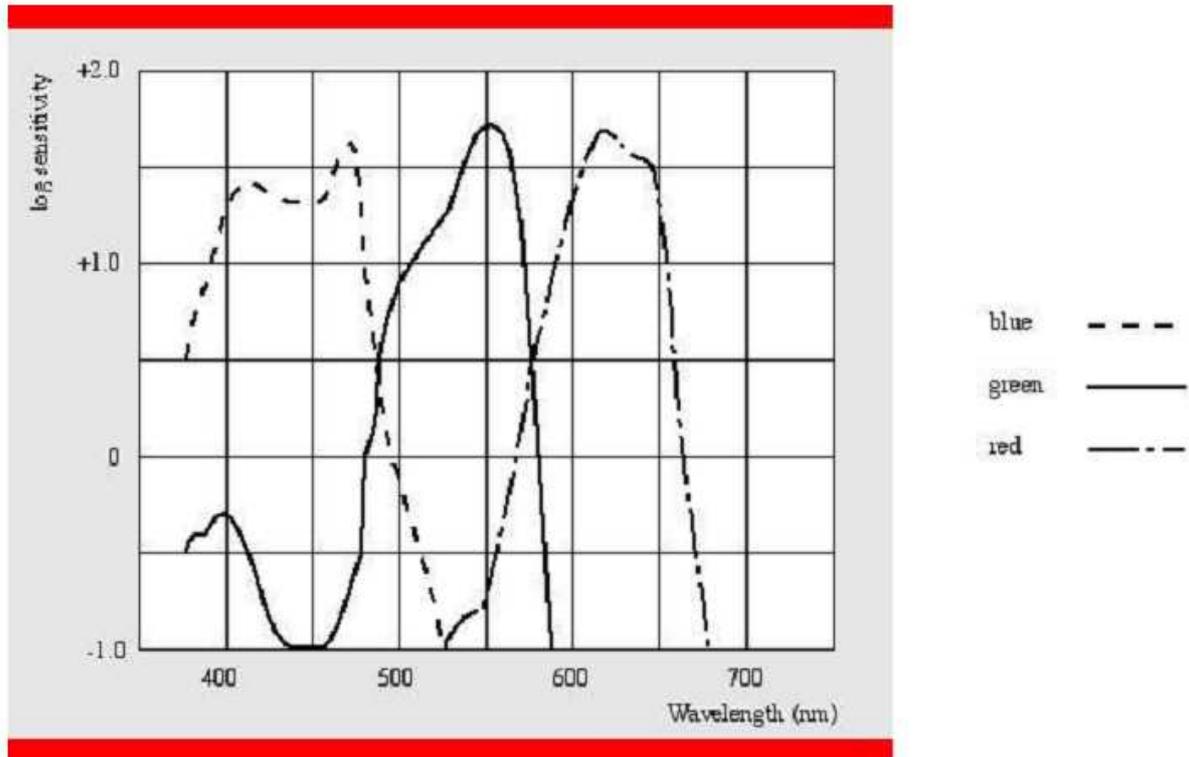
ISO 640/29, ASA 640, DIN 29 for processing in Agfa ASP 70 process at 37.8 °C/100 °F for 5 min 20 s.

Example: 1/500, f=5.0 at 2,500 ft, 15° with 400 setting at Zeiss RMK Top 15.

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## Spectral Sensitivity



The curve refers to a density 1.0 above base fog. Sensitivity is reciprocal to the exposure expressed in  $\text{mJ}/\text{m}^2$ , required to produce that particular density.

### Colour Rendering

The colour rendering of **MACO EAGLE COLOR SURVEILLANCE FILM** is set at a colour temperature of 5500 K (Daylight). The absence of a colour mask makes the colour rendering less saturated when compared to masked films. The loss of saturation is being compensated in the **MACO EAGLE COLOR SURVEILLANCE FILM** using embedded chemical processes.

### RMS Granularity

The RMS granularity measured in the magenta dye layer at a diffused visual density of 1.0 with  $48\mu\text{m}$  spot size equals  $\text{RMS} (\times 1000) = 7$ . The magenta dye layer contributes for the largest amount in the perceived graininess.

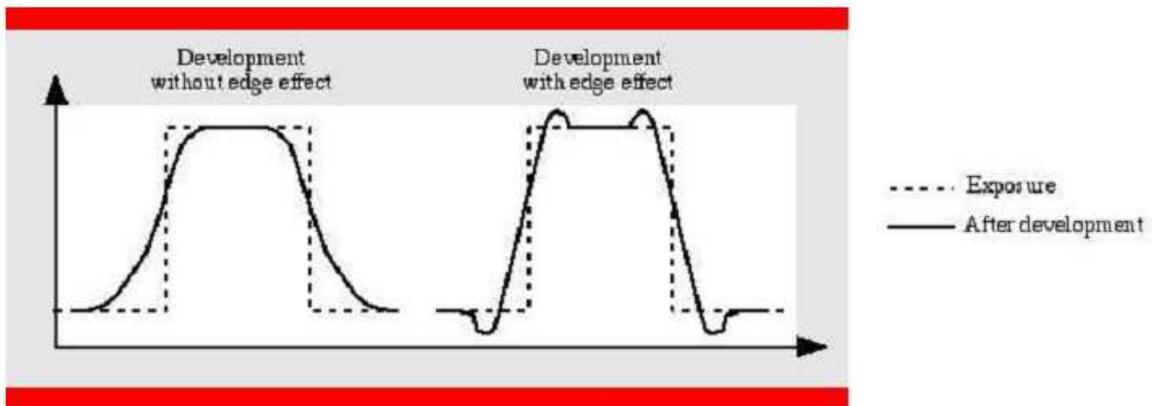
### Sharpness

The impression of image detail content is based on granularity, edge definition and overall radiometric quality. In view of the low level of granularity, and the sharp edge effect offered by this film, **MACO EAGLE COLOR SURVEILLANCE FILM** will yield extremely detailed photographic images.

Due to the use of the DIR technology (Developer Inhibitor Release) inhibitors in the emulsion are active during development, to achieve better differentiation of densities within one colour. The visual effect results in clear-cut marking and enhanced sharpness.

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### TOC (Target Object Contrast)

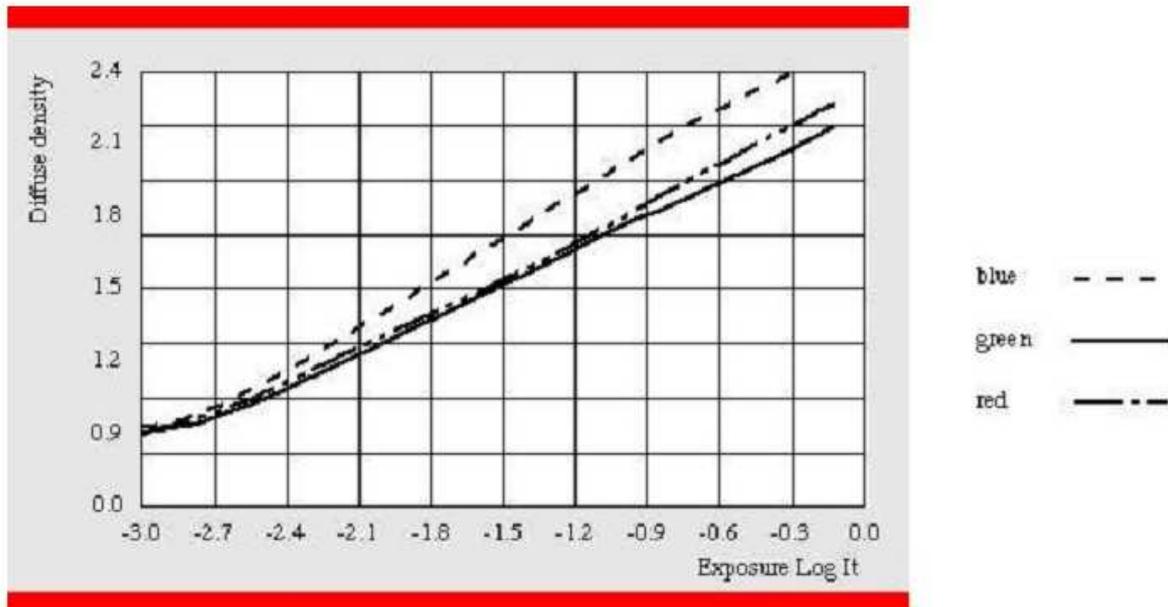
Measured according to ANSI PH 2.33-1980:

TOC 1000:1 = 130 lp/mm or 260 dots/mm.

TOC 1.6:1 = 55 lp/mm or 110 dots/mm

These resolution values are not affected by the processing conditions in A SP 70.

### Colour Density Curves



Exposure: daylight 1/1000 s.

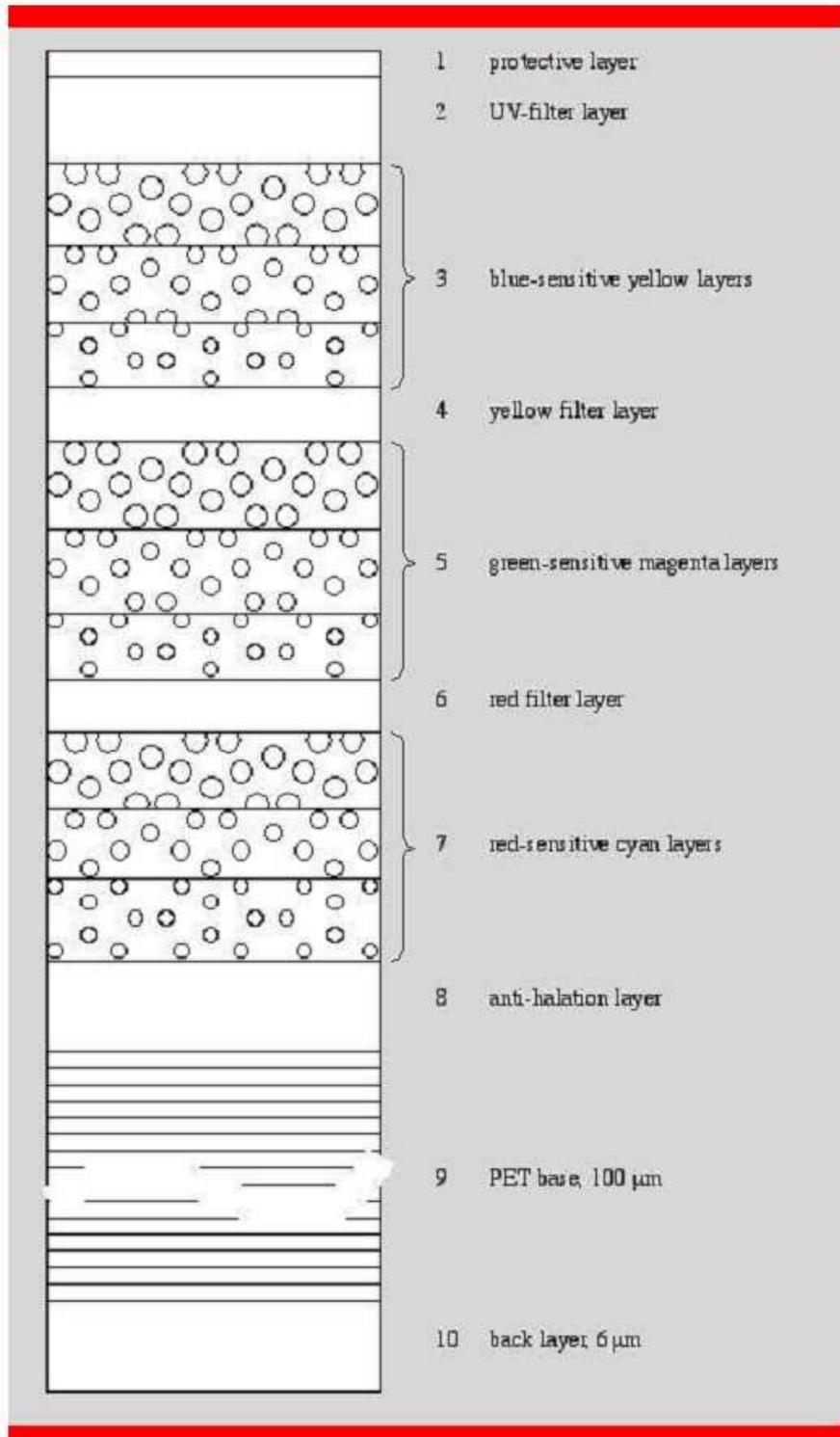
Processing: ASP 70 at 37.8 °C/100 °F for 3 min 15 s.

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## Film structure

Total film thickness: 100µm PET + 31µm colour layers + 6µm back layer = 137µm.  
 63µm PET + 31 µm colour layers + 6µm back layer = 100 µm.



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# Production Guidelines

## Film handling

Wear cotton gloves, both before and after processing the film.

## Darkroom Lighting

The film must be handled in total darkness.

## Exposure

Recommended speed setting: 400 up to 640 ASA.

Filters are not required, as the emulsions are sensitised to daylight. In slightly hazy conditions it is advised to use a 420 nm haze cut filter to improve the image contrast.

**MACO EAGLE COLOR SURVEILLANCE FILM** is manufactured within strict tolerances, and the spectral deviations are minimal.

Always make a series of test images representative of the exposure, flying altitude and atmospheric conditions, which will determine the optimum processing conditions.

## Processing

**MACO EAGLE COLOR SURVEILLANCE FILM** is preferably processed in a processor with Agfa A SP 70 process (or the equivalent C 41).

Processing at 4 min. instead of standard 3min15sec processing time, improves the graininess of the image –especially in the low exposure areas.

If you do not have your own aerial processor, specialised photo labs can offer a solution. They generally have a lot of experience in processing Color film.

## Archival

**MACO EAGLE COLOR SURVEILLANCE FILM** can be archived for a very long time, if the material has been processed in a professional way and according to the instructions. Dark fading (loss of a certain colour dye) is normally due to inadequate washing and/or stabilising during processing. Light fading (exposure to light) hastens the deterioration of the colour dyes. If the films are to be stored for the maximum duration -i.e. centuries - we recommend keeping them stored in a dark room, at a relative humidity ranging from 40% to 60% and at a temperature of maximum 24 °C/75 °F. Protect the film from effects caused by harmful gases (formaldehyde -, turpentine -and vapour, hydrogen sulphide or ammonia).

## Shelf Life

Unexposed **MACO EAGLE COLOR SURVEILLANCE FILM** films should be stored in a cool and dry place, in their original packaging at a temperature below 10 °C/55 °F. The photographic characteristics can be kept stable in freezers (at temperatures below -10°C/+14°F) for an extended period of time. After it has been taken out of the freezer, the film needs to adapt to the ambient temperature for some 12 hours, before the original packaging can be opened. If that is neglected, the air humidity on the film may start condensing. After the original packaging has been opened, the film must not be exposed to high temperatures or high air humidity. It should also be kept clear from harmful gases.

Exposed films are best processed immediately afterwards. The latent image may start fading, especially when influenced by less favourable weather conditions (heat, high air humidity) possibly causing a shift in the colour balance.

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## Dimensional stability

### Temporary dimensional changes

Thermal coefficient of linear expansion ( -20 °C to +50 °C): 0.0018 % per °C of change  
 Humidity coefficient of linear expansion (30% RH to 60% RH): 0.0024 % per % RH of change

### Permanent dimensional changes

Dimensional change due to processing: +0.0016 %, pre-to post –processing

## Assortment

**MACO EAGLE COLOR SURVEILLANCE FILM** – standard sizes for traffic/surveillance applications

Size		Spool/Winding/Perforation	Order code
35 mm x 17 m	35 mm x 55 ft	Plastic core*** – EI – P – frame nr	
35 mm x 30.5 m	35 mm x 100 ft	Plastic core*** – EI – P – frame nr	
35 mm x 30.5 m	35 mm x 100 ft	Plastic reel**** – EI – P – frame nr	
35 mm x 1.66 m (36 exp)	35 mm x 6.5 ft	F-135-EI-P-frame nr	

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