

PO100c

New orthopanchromatic Black and White film

Maco PO 100c

MACO PO 100c is a medium speed black and white film, orthopanchromatic exhibiting excellent grey scale tonal differentiation, maximum black density and the highest resolution with very fine grain and sharpness. In contrast to pure orthochromatic films, MACO PO100c differentiates between red and black and is therefore highly suited for portraiture, architectural and landscape applications. The film can be processed in all the commonly available developers. The clear film base allows the film to be treated as a slide reversal film.

Packaging

35 mm 135-36 + 30.5 m bulk film

Rollfilm 120

Technical Data

Spectral Sensitivity

Orthopanchromatic - approx 380 nm to 600 nm

Film Speed

Highly dependent upon the developer used but for guidelines:

Daylight: ISO 100/21° bis ISO 200/24°

Tungsten: ISO 50/18° bis ISO 100/21°

Film Base

35 mm: Cellulose Acetate, 130 µm

Rollfilm 120: Polyester, 100 µm

Resolution

260 Lp/mm with contrast factor 1:1 000

Processing

Process in complete darkness or indirect dark red safelight.

Lighting

Under daylight conditions (5400 K) the film has a sensitivity of ISO 100/21° (ISO 200/24° if developed in a push developer such as Ilford Microphen). Due to the lack of sensitivity to long wavelength (red) light it is recommended when using tungsten lighting or by low sun (evening sun) that the film be rated 1 stop slower than the normal daylight rating. In case no light meter is available the following values may be used for guidance:

Sunshine in mountainous regions	1/500, f 22
Beach or snow in bright sunlight	1/500, f 22
Bright sunlight (Sunny 16 Rule)	1/500, f16
Sunshine Sonnenschein und Hochnebel	1/500, Blende 11
Cloudy with some Sunlight	1/500, f 5,6
Cloudy with long shadows	1/500, f 5,6

Reciprocity Failure

As with all films, reciprocity failure raises its head with long exposure times. The following correction table is provided as a guide only:

Measured Exposure	Corrected Exposure
1	1 - 2
2	3 - 4
4	8
8	24
15	60
30	180

Note that reciprocity failure leads to an increase in contrast (because highlights need smaller extended exposure times as shadows) and it may be profitable to use a compensating developer such as LP-Supergrain, particularly when very long exposure times are used.

Filter factors

Cameras using built-in exposure meters which measure through the lens will not in general require any corrections when using filters. If measuring with a hand held exposure meter the following correction factors may be applied. Note that the factor shown means opening the aperture in f stops by the number shown:

Yellow (#8) 1.5 - 2

Dark Yellow (#15) 2 - 3
Yellow Green (#11) 3 - 4
Orange (#21) 3 - 4

Due to the reduced red sensitivity red filters are NOT recommended.

Note that these values relate to daylight conditions. Tungsten lighting contains a higher level of red light which is weakened less by Yellow and Orange filters and so the corrected, extended, exposure times should be **reduced** by 0.2 – 0.5 of a stop to compensate.

Pre-Wetting

MACO PO 100c has a clear film base with water soluble anti-halation layer. To ensure the greatest possible film speed and evenness it is recommended to pre-wet the film before development. It is only necessary to agitate the film for about 2-3s for 30s in normal tap water. To avoid unwanted effects such as reticulation (unless of course this is the effect required!) use water of about the same temperature as the developer solution.

Temperatur des Wassers sollte dabei möglichst dieselbe sein, wie sie für den folgenden Entwicklungsvorgang geplant ist.

Hinweis: Durch die Entfernung der wasserlöslichen Lichthofschutzschicht ist das Waschwasser beim Ausgießen dunkelblau gefärbt. Diese Verfärbung ist normal. Einmaliges Wässern, wie oben beschrieben, reicht aus; es ist nicht erforderlich, zu wässern, bis keine Verfärbung mehr auftritt.

Recommended Developing Times

The following times are approximate and are valid only when the film has been pre-wetted as recommended and with an agitation regime of 1 every 30s.

Developer	Time in minutes
LP-DOCUFINE LC 1+4	8
LP-ECOPRINT universal/ECOTOL 1+12	5
LP-SUPERGRAIN 1+7	5
LP-SUPERGRAIN 1+9	6
LP-CUBE XS 1+4	14 (24°C)
(ISO 50/18°)	
Ilford ID 11 Stock	7
Ilford Ilfotec HC 1+15	5
Ilford Microphen Stock	7
(ISO 200/24°)	
Ilford Perceptol Stock	9
(ISO 50/18°)	
Kodak D-76 Stock	7
Kodak HC-110 Dil. B	5
Kodak T-max 1+4	6
Kodak Xtol 1+2	16
Moersch MZB 2 bath developer	Bath A: 10, Bath B: 7 @ 24°C
(ISO 64/19°)	
Tetenal Ultrafin 1+10	7 (agitate every 3s)
Tetenal Ultrafin 1+20	9 (agitate every 3s)

Stop bath

The primary reason for using a stop bath is to reduce the amount of alkaline developer contaminating the (acid) fixer and thereby progressively reducing its effectiveness. A stop bath has no effect upon the actual film itself and so is not strictly necessary. Any stop bath can be used at the recommended dilution, recommended time is 1 minute. If an acid stop bath is not used it is recommended to wash the developer from the film with 2 fills of normal tap water agitating continuously for 30s each time.

Fixing

LP-FIX SUPRA diluted to 1+7 or 1+9 is recommended although any modern high energy, ammonium thiosulphate fixer may be used. Fixing time may be accurately determined by the simple fixer test of holding piece of undeveloped film (the cut off 35mm leader for example) in the fixer and measuring the time it takes to completely clear the emulsion. Multiply this time by 3 and fix for this time. Otherwise, 3 minutes at 20°C.

Washing

The following regime is recommended:

- 1 Fill Tank with water at 20°C, invert 5 times, leave standing for 5 min.
- 2 Change the water, invert 10 times and leave 5 min.

3 Change water, invert 20 times and leave 5min.

4 Pour water out and use wetting agent.

Wetting Agent

Use a wetting agent (such as LP-Masterproof) with, if at all possible, de-mineralised, de-ionised or distilled water (battery water) to avoid drying marks caused by hard water elements and to reduce build up of static electricity on the film which attracts dust like a magnet.. In using the wetting agent solution be careful not to create foam as this does not drain well from the film.

Drying

Shake water from the film while it is still in the spiral. Hang the film in a dry, dust-free area and leave to dry. Use of weighted film clips is recommended to ensure the film lays flat when dry. If using a drying cabinet switch off the heater. DO NOT use a hairdryer.

Scanning

The transparent film base makes the PO100c absolutely perfect for scanning