B&W Film developper

Sharpness - Very fine grain
Detailed highlishts

BERGGER PMK

PMK is a pyrogallol-based developer (the most used developer in the 19th century, nicknamed the king of developers) adapted to modern films by Gordon Hutchings in the 1980s. The PMK tones films with a yellow-green tint which is one of the peculiarities of pyrogallol and gives negatives with very sharp outlines and very detailed highlights.

PMK Properties

PMK is designed as a universal developer for modern emulsions used in varied conditions. The use of Pyrogallol in its components makes PMK a developer with unique qualities: a tone is formed where the silver is reduced.

A yellow-green tint surrounds each silver grain and fills the usually empty space between them and becomes an intrinsic part of the image. The density of a «pyro» negative is therefore the conjunction of two densities, that of the silver and that of the coloration. As a result, the sensitivity of the film and its printing qualities are increased. The definition is more pronounced, the grain is reduced.

Preparation

The BERGGER PMK comes in the form of two solutions A (250 ml) and B (500 ml) to be mixed with water to create a working solution. In standard dilution 1 (A) + 2 (B) + 100 (water) it is possible to prepare 25 litres of working solution. The working solution should quickly take on an amber colour. This is a guarantee of its effectiveness.

Conservation

The shelf life of both solutions is exceptional, up to 10 years, even when kept in half-filled bottles.

Use

Capacity for development : The formula can develop up to 1000 cm ² of film per litre of working solution:

- 8X10: 2 sheets
- 4x5: 8 sheets
- 220 : 1 film
- 120 : 2 films
- 135-36: 2 films

Preservation of the working solution: in open vials, the PMK can be kept for one hour without affecting the quality of the development.

Development Temperature:
The PMK can be used from 21° to 27° with excellent results. At 27° C, the grain is less pronounced on the negative. Above 27/28° C, there is a risk of emulsion deterioration (delamination and cross-linking).

Film processing

Pre-wetting: A pre-wetting of at least 3 to 5 minutes in water of similar temperature to that of the working solution is essential (+/- 2 degrees is fine). Insufficient pre-wetting leads to irregularities in development.

Agitation: For development in watertight tanks (Paterson, Kinderman, etc...), stir constantly for the first 15 seconds and then every 15 seconds (two sharp turns of the tank by stirring; knock the bottom of the tank at the end of stirring to eliminate air bubbles). Between each agitation, the tank must remain stationary. This high stirring frequency prevents uneven development.

In deep tanks, also follow a stirring frequency every 15 seconds. Adopt a rotation movement as much as the elevation of the column of coils. Films may develop unevenly if stirring is not performed properly (too slow or too abrupt).

Stop bath: It is recommended to use non-acide Agitate continuously.

Fixing: A non-tanning bath is essential for good subsequent coloration of the negative. Fix twice the time required for clearing of the negative (preform a clip test to determine times). Conventional stirring. We recommend the use of the acid-free fixer: BERGGER Berfix

Washing: Immediately wash the film under running water for 20-30 minutes. At least 20 minutes are necessary because the image colouring intensifies during washing. If no running water is available, use 6 baths of 3 to 5 minutes each (shake constantly during the first bath). Above all, do not use a hypo-sulphite (hypo-clear) eliminator, which would weaken the colouring of the negative.

Development errors

- Uneven development, showing areas of too dissimilar densities, uneven colouring, varying from olive green to yellow: defect caused by insufficient agitation. Increase the strength and frequency of agitation, especially if the negatives are a little thin (low density) and lack coloration.

- Denser image edges. Caused by inadequate shaking, resulting in turbulence at the edges of the negative. Review the shaking.

- Transverse and/or lateral traces of high density. Caused by inadequate agitation, or physical obstruction due to developing equipment. Review the agitation, which is more intense and frequent. Check the developing material for turbulence inducing elements.

- Fuzzy. May indicate poor agitation, but may also indicate a developer is contaminated. Verify that the developing equipment is free of traces of chemicals that may contaminate pyrogallol.

- Irregular circular markings; lines of varying width and high density. The first minute of immersion in the pyrogallol is critical. Make sure to pre-wet the film for 3 to 5 minutes in a solution about 2°C warmer than the developer. Another remedy is to prewet with a slightly alkaline bath (2 g of sodium metaborate per litre of water); this will neutralize any acidity in the tap water.

- Proportion of metallic silver is greater than the coloration of the negative. This rare phenomenon can occur in case of overexposure on some films. Review the exposure index. Dilute the developer by adding 25% more water; and increase the development time by 15 to 25%.

- Black spots, dark marks, presence of foreign matter on the emulsion. Due to the

presence of metal salts dissolved in water. Filter the water or use distilled water.

Toxicity

Pyrogallol is a toxic product for the health causing kidney, liver, circulatory disorders, or even death.

Pyro is toxic by inhalation, skin contact or ingestion. Pyro is also a phenol and can cause burns. Use gloves and clean all equipment with soap and water. Brief skin contact may cause a dark, non-scalding stain. Prolonged skin contact may cause a chemical burn that is very similar to a heat burn.

Keep solutions tightly closed and protected from light.

In case of contact with the product, rinse thoroughly with water. In case of more extensive contact or contact in the eyes, consult a pharmacist. In case of inhalation or ingestion, inform a doctor.

Keep out of reach of children.

The whole Safety Data Sheet is available on www.bergger.com

Time / Temp Chart

To adapt your development time according to your preferences, you can refer to this Time / temp chart.

Film	ISO	Dil	21°	24°	27°
BERGGER Pancro400	200	1 + 2 + 100	16'30'	13'30	10'15
Fomapan 100	50	1 + 2 + 100	10'	8'	6'30
Fomapan 200	100	1 + 2 + 100	10'	8'	6'30
Ilford Pan F+	32	1 + 2 + 100	9'	7'30	6'
Ilford FP4+	80	1 + 2 + 100	10'	8'	6'30
Ilford HP5+	200	1 + 2 + 100	13'	10'	8'
Ilford Delta 100	64	1 + 2 + 100	13'	10'	8'
Ilford Delta 400	320	1 + 2 + 100	16'	13'	10'
Kodak Tri-X 400	250	1 + 2 + 100	15'	12'	10'