



User Manual #9511 B&W-Developer

Universal film developer for all black and white films (one-shot)

When developing B&W film the goal is to optimise results in three areas if possible:

1) maximum use of film sensitivity 2) fine grain 3) sharpness.

These three criteria are also called the magic triangle of film development. They are more or less measurable. Traditionally it is maintained that no developer can achieve best results in all three areas.

There is no doubt that film development is a fundamental step. Each film can only be developed once. The better the film is developed, the stronger the basis turns out to be, on which excellent prints can be produced from this film.

JOBO has engineered this B&W developer in cooperation with the chemist Klaus Wehner. Our laboratory tests have shown that JOBO alpha developer allows making full use of the box film speed and that the resulting negatives are still characterised by very fine grain and great sharpness. This makes JOBO alpha the best B&W developer that the company has marketed in its one hundred year history.

- Preparation for 100 ml: 5 ml Part A + 5 ml Part B + 90 ml tap water. (1+1+18)
- One-shot developer. Prepare developer immediately before use.
- Minimum amount of concentrate per film: 6 ml Part A + 6 ml Part B.
- Adaptation of the development time to the individual working conditions makes sense. Aim for negatives with a contrast that can be printed with an average grade of 2 or 2.5. Extension factors of approx. x1.3 up to x1.8 can be expected for enlargements with soft diffusor light from color enlargers. Conversely, a time reduction of approx. x0.6 to x0.8 will apply for condenser enlargers.
- Storage in bottles filled to the brim increases shelf life.
- Shelf life of the concentrates at room temperature is at least 12 months.
- For optimal processing: a specially adapted, neutral fixing bath is available from JOBO. JOBO alpha neutral fixer is a two-bath fixer.
- Extension factors for different temperatures or inversion processing:
for inversion processing (instead of rotational development): x1.1
for 20°C (instead of 22°C): x1.2; for 24°C (instead of 22°C): x0.83

The times in the table are provided as guidelines for a process without pre-wash at 22 °C and rotary development for a medium contrast (gamma 0.65).

For the development of larger formats (sheet film), the pre-wash is helpful to ensure that the entire film surface is developed as evenly as possible.

The rotation speed of the JOBO tank system 1500 and 2500 is between 65 and 75 rpm. The rotation speed of the JOBO Expert Drums for sheet film is approx. 50 rpm.

Film	Working Solution	Temp.	Time
Ilford Pan F (50 ASA)	5+5+90 ml	22° C	6 Min.
Ilford FP-4	5+5+90 ml	22° C	8,5 Min.
Ilford HP-5	5+5+90 ml	22° C	12 Min.
Ilford Delta 100	5+5+90 ml	22° C	7 Min.
Ilford Delta 400	5+5+90 ml	22° C	10 Min.
Ilford SFX 200	5+5+90 ml	22° C	9 Min.
Ilford 3200 (1000 ASA)	5+5+90 ml	22° C	16 Min.
Kodak Tmax 100	5+5+90 ml	22° C	10 Min.
Kodak Tmax 400	5+5+90 ml	22° C	11 Min.
Kodak Tri X	5+5+90 ml	22° C	11 Min.
Kodak P 3200 (1000 ASA)	5+5+90 ml	22° C	16 Min.
Adox Pan 25	5+5+90 ml	22° C	8 Min.
Adox CHS 100 II	5+5+90 ml	22° C	7,5 Min.
Adox Silvermax	5+5+90 ml	22° C	7 Min.
Adox CHM 100	5+5+90 ml	22° C	8 Min.
Adox CHM 400	5+5+90 ml	22° C	15 Min.
Agfa APX 100	5+5+90 ml	22° C	7 Min.
Agfa APX 100 (new)	5+5+90 ml	22° C	8 Min.
Agfa APX 400 (new)	5+5+90 ml	22° C	15 Min.
Polypan F	5+5+90 ml	22° C	16 Min.
Fuji Acros	5+5+90 ml	22° C	6 Min.
Foma Pan 100	5+5+90 ml	22° C	6 Min.
Foma Pan 200 (100 ASA)	5+5+90 ml	22° C	8,5 Min.
Foma Pan 400 (200 ASA)	5+5+90 ml	22° C	10 Min.

Film	Working Solution	Temp.	Time
Kentmere 100	5+5+90 ml	22° C	8 Min.
Kentmere 400	5+5+90 ml	22° C	15 Min.
UN 54 (100 ASA)	5+5+90 ml	22° C	6 Min.
N-74	5+5+90 ml	22° C	12 Min.
Rollei RPX 25 (40 ASA)	5+5+90 ml	22° C	6 Min.
Rollei Super Pan 200 (100 ASA)	5+5+90 ml	22° C	6 Min.
Rollei RPX 100	5+5+90 ml	22° C	8 Min.
Rollei RPX 400	5+5+90 ml	22° C	15 Min.
Bergger Panchro 400	5+5+90 ml	22° C	25 Min.

Film types requiring special solutions

Adox HR/ IR 50 (50 ASA) *1)	2,5+2,5+95 ml	22° C	9,5 Min.
mit IR/ Filter 720 nm (3,2 ASA)	2,5+2,5+95 ml	22° C	9,5 Min.
Ferrania P 30 (25 ASA)	1,2+1,2+97,6 ml	22° C	9 Min.
Rollei 80 S (32 ASA)	2,5+2,5+95 ml	22° C	8,5 Min.
Adox CMS 20 (9 ASA) *2)	1,2 + 1,2 + 97,6	22° C	8 Min.

*1) film speed as measured according to density in Zone V

*2) Adox CMS 20: contrast can be adjusted by changing the solution:
high contrast: 2+2+96 | low contrast: 1+1+98

- Push- & Pull-processing: Some films are especially suitable for push- & pull processing: Delta 400, T-Max 1000, T-Max 400, HP-5, Tri-X, N-74, Kentmere 400, (Adox CHM 400, APX-400 new, RPX 400...)

In order to influence the density of the negative the following factors should be applied:

ISO	200/ 24	400/ 27	800/ 30	1600/ 33	3200/ 36
Factor	0,77	1,0	1,3	1,7	2,2

If you have questions, you are invited to contact us by e-mail: chemicals@jobo.com