

## Df96 PROCESSING INSTRUCTIONS:

**Development** is increased by temperature and decreased by agitation.

**Fixing** is increased by agitation, while accelerating completion.

### Native ISO Processing:

- 80°F (27°C) • Constant agitation ≥ 3 min
- 75°F (24°C) • Intermittent agitation ≥ 4 min
- 70°F (21°C) • Minimal agitation ≥ 6 min

- Processing over 82°F (28°C) will result in pushed negatives with more density & pronounced grain.
- Below 68°F (20°C) renders pulled density.

*\*Temp tolerance is +/-2°F (1°C) and times are minimum. Feel free to extend processing time to ensure full fixing of film or removal of color dyes. Time does not increase development*

### AGITATION INSTRUCTIONS:

Agitation helps produce evenly developed\* exposures, and prevents over-processed, under-fixed negatives.

#### Constant Agitation:

Fluid inversions and/or rotations, while changing direction.



#### Intermittent Agitation:

30 sec constant agitation, then 10 sec every min.

#### Minimal Agitation:

10 sec gentle agitation, then 5 sec every min.

*\*Bromide drag lines can occur if left to stand for any more than 1 minute.*

Df96 monobath easily processes any standard black and white film at its native ISO. It is designed with traditional cubic-grain emulsions in mind, like BwXX, TriX and HP5, with high silver content. It also works well with tabular grain films with color dye technology, like Tmax or Delta films, but require double the processing time to clear the pink/purple dyes in the emulsion. High speed films like P3200 and Delta3200 can be processed at their native ISOs between 1000-1600 by the instructions on the label, or at 3200 by adding 10°F (6°C). All films can be pushed or pulled by adjusting temp. +/-10°F (6°C).

### FULLY ARCHIVAL PROCESSING:

For any processed film to be fully archival only two things need to occur; full removal (fixing) of undeveloped silver halide, and removal (washing) of processing chemicals from the film.

**Archival fixing** occurs in 3-6 minutes with fresh Df96. Feel free to extend processing times to ensure full clearing of film, as it will not affect development. Df96 uses one of the most effective archival fixing agents and should produce fully archival negatives when processing instructions are followed.

**Archival washing** occurs at room temperature under running water for 5 min, or fill and empty tank at least 10 times. Washing time after Df96 processing is exceedingly rapid because the solution is alkaline. No more than five minutes is needed for a wash to archival standards. A longer final rinse and rinse aid will help ensure archival negatives.

#### Washing Instructions For Minimal Water Usage:

- After negatives are fully fixed, fill the tank with water at the same temperature +/-10°F (6°C) as the processing solutions. Invert the tank 5 times.
- Drain the water away and refill. Invert the tank 10 times.
- Once more, drain the water. Invert the tank twenty times and drain the water away.
- Then rinse one final time, optionally with a few drops of Wetting Agent added to the rinse water, distilled water helps prevent hard water spots.

AGITATION METHODS				
Fahrenheit	Constant 3 minutes	Intermittent 4 minutes	Minimal 6 minutes	Celsius
65°F	---	Pull -1	Pull -1/2	18°C
70°F	Pull -1	Pull -1/2	Normal	21°C
75°F	Pull -1/2	Normal	Push +1/2	24°C
80°F	Normal	Push +1/2	Push +1	27°C
85°F	Push +1/2	Push +1	3200 Film	30°C
90°F	Push +1	3200 Film	Push +2	32°C
95°F	3200 Film	Push +2	---	35°C

## FILM RATING CHART FOR DF96: (Box speeds in red)

\*Tabular grain films with color dye technology, like Tmax or Delta, require double the processing time to clear the pink/purple dyes in the emulsion.  
 † High speed films like P3200 and Delta3200 can be processed at their native ISO between 1000-1600 by the instructions on the label. These are designed to be pushed to 3200 by adding 10°F (6°C).  
 ‡ Bergger Pancro requires at least triple the processing time and the manufacturer calls for additional steps to the traditional developer-stop-fix process.

FILM TYPE	PULL 65-70°F (18-21°C) +1MIN	NORMAL 70-80°F (21-27°C)	PUSH 80-90°F (27-32°C)
CineStill BwXX	ISO 100-125	ISO 200-400	ISO 500-800
Kodak Tri-X	ISO 200	ISO 400	ISO 800
Kodak Tmax 100*	ISO 25-50 (2x min)	ISO 80-100 (2x min)	ISO 125-200 (2x min)
Kodak Tmax 400*	ISO 200 (2x min)	ISO 400 (2x min)	ISO 800 (2x min)
Kodak Tmax P3200 †	ISO 1000 (2x min)	ISO 1600 (2x min)	ISO 3200 (2x min)
Kodak Plus-X	ISO 50-60	ISO 100-125	ISO 200-250
Ilford FP4 Plus	ISO 60	ISO 125	ISO 250
Ilford HP5 Plus	ISO 200	ISO 400	ISO 800
Ilford Delta 100*	ISO 50 (2x min)	ISO 100 (2x min)	ISO 200 (2x min)
Ilford Delta 400*	ISO 200 (2x min)	ISO 400 (2x min)	ISO 400 (2x min)
Ilford Delta 3200 †	ISO 500 (2x min)	ISO 1000-1600 (2x min)	ISO 2000-3200 (2x min)
Ilford Pan F Plus	ISO 25	ISO 50	ISO 100
JCH Street Pan	ISO 100	ISO 200	ISO 400
Adox Silvermax	ISO 25-50	ISO 80-100	ISO 125-200
Adox GHS 100 II	ISO 25-50	ISO 50-100	ISO 125-200
Kentmere 100	ISO 25-50	ISO 80-100	ISO 160
Kentmere 400	ISO 160-200	ISO 250-400	ISO 500-800
Rollei RPX 25	ISO 12	ISO 25	ISO 50
Rollei RPX 100	ISO 50	ISO 100	ISO 200
Rollei RPX 400	ISO 200	ISO 400	ISO 800
Rollei Retro 80S	ISO 12	ISO 25-50	ISO 80-100
Rollei Retro 400S	ISO 100	ISO 200	ISO 400
Foma RETROPAN 320	ISO 80-125	ISO 200-320	ISO 400-500
Foma Fomapan 100	ISO 50	ISO 100	ISO 200
Foma Fomapan 200	ISO 100	ISO 200	ISO 400
Foma Fomapan 400	ISO 200	ISO 400	ISO 800
Bergger Pancro ‡	ISO 125-200 (3x min)	ISO 320-400 (3x min)	ISO 500-800 (3x min)
Arista EDU Ultra 400	ISO 200	ISO 400	ISO 800
Arista EDU Ultra 200	ISO 100	ISO 200	ISO 400
Arista EDU Ultra 100	ISO 50	ISO 100	ISO 200

## EXCEPTIONS TO THE RULES:

A couple craft films and surveillance films, which require longer times in standard developers to achieve box speed, will yield a lower native ISO. For example, Rollei Retro 80s, with it's impressively fine grain and low contrast, is best rated at ISO 25, and JCH Street Pan really shines at ISO 200.

Adox CMS 20 II can produce the sharpest, highest resolving, most fine grained images in the world, but it "...achieves 20 ASA of usable speed in ADOTECH developer... If developed in non dedicated low contrast it can be exposed at **3 to 6 ASA**." - [adox.de](http://adox.de)

Bergger Pancro 400 requires triple the processing time in order to break down the intense antihalation layer, and even calls for an additional steps to standard multi bath processing. "...the film must be presoaked in water for 5 minutes, at one degree warmer than developer." "BERGGER PANCRO 400 needs a longer the usual fixing time." "A rinse in a sulphite bath (10%) will allow to eliminate the chemicals complexes...and also allow the full dissolution of the anti-halation layer." - [bergger.com](http://bergger.com)

## TROUBLESHOOTING:

PROBLEM	POSSIBLE CAUSE	REMEDY
Thin negatives	<ul style="list-style-type: none"> <li>• Low processing temp.</li> <li>• Under exposure</li> <li>• Developer exhausted</li> </ul>	Increase exposure or temperature
Negatives not fully cleared	<ul style="list-style-type: none"> <li>• Color dye technology</li> <li>• Insufficient agitation</li> </ul>	Process longer with increased agitation
Bromide drag	<ul style="list-style-type: none"> <li>• Let stand for too long</li> </ul>	Increase agitation

## CHEMICAL REUSE:

**Can process 16+ rolls of film.** Simply recombine used chemistry and add +15sec. for each roll previously processed until you reach 8 min. If a film does not appear fully cleared, process for longer in Df96. It will not affect development.

## Chemistry Lifespan:

Expected shelf life is 1 year from purchase, and once opened should be used within 2 months. Film will still finish processing as chemicals age but will eventually produce thin negatives when developer is exhausted.

## Exhaustion Indication:

As chemicals exhaust they will start to yellow and turn dark amber when perished. Oxygen and contaminants cause developing agents to perish. Depending on silver and dye content of film types, you should be able to continue reusing until you reach an unacceptable processing time.

## Simple Quality Control:

Before reusing opened chemicals it is a best practice to do a daylight snip test. Snip off light-struck film from a 35mm leader tongue and process in a cup with a small amount of Df96. The test should come out opaque black (D-max of the film) to guarantee quality. You can save the snippet to compare to future tests. If the test comes out thin, you can increase temperature and retest, or retire chemistry if transparent.