ILFORD

FACT SHEET

ILFOTEC DD-X

FINE GRAIN, ONE-SHOT, BLACK AND WHITE FILM DEVELOPER

ILFORD ILFOTEC DD-X is a fine grain developer which gives full film speed. It produces negatives which are easy to print. Correctly exposed negatives developed in ILFOTEC DD-X have a full range of tones, with depth in the shadows, a smooth transition through the mid-tones and bright, detailed highlights.

ILFOTEC DD-X is designed to complement the features of ILFORD films, especially the range of ILFORD DELTA PROFESSIONAL films. In particular, it is recommended for use with DELTA 3200 PROFESSIONAL film rated at EI 3200/36. It also gives excellent results when used with quality black and white films from other manufacturers. ILFOTEC DD-X is supplied as a liquid concentrate for one-shot use.

Note Photographic chemicals are not hazardous when used correctly and the basic rules of commonsense are observed. Health and safety recommendations are always given on the packaging of each product, and this is a guide to safe handling and use. Further details are available in the ILFORD photochemicals material safety data sheets for each ILFORD chemical which give full details for their safe handling, disposal and transportation.

MIXING

Always follow the health and safety recommendations given on the packaging and, in addition to any specific precautions, use these commonsense rules:

1 Work in a well ventilated area.

2 Wear safety spectacles and gloves when using chemicals.

3 Wash your hands thoroughly after using chemicals.

4 If you have come into contact with the chemicals and feel unwell, seek medical advice and take the chemical container with you.

5 Never eat or drink while using chemicals.

6 Never smoke while using chemicals.

Dilution

Dilute ILFOTEC DD-X liquid concentrate 1+4 with water before use.

Mixing the working solution

Determine first which tank size is being used and measure out the appropriate quantity of concentrate. Always use the smallest measuring cylinder available: it is easier to measure 10ml accurately in a 50ml cylinder than in a 500ml cylinder.

Add the concentrate to the mixing vessel. A large measuring jug is a good mixing vessel as it provides a check on the total quantity of solution mixed. Rinse out the measuring cylinder used for the concentrate into the mixing vessel.

Finally, add hot and cold water to make up the final volume at the desired temperature.

As most water drawn from pressure mains is highly aerated, it is advisable to draw some off and leave it to stand for a few minutes before use.

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DEVELOPMENT TIMES

The table gives development times for both manual and machine processing of film. These times will produce negatives of average contrast suitable for printing in all enlargers. The development times are intended as a guide and may be altered if a different result is needed.

To use the tables, first decide which film and meter setting has been used, then read off the development time for the film format used.

For manual processing in spiral tanks, the development times are based on intermittent agitation. Where continuous agitation is used for manual processing (as in a dish/tray or with some types of developing tank), reduce these times by up to 15%.

For use in rotary processors without a pre-rinse, reduce the spiral tank development times by up to 15%. A pre-rinse is not recommended as it can lead to uneven processing.

ILFORD films

		20°C/68°F			24°C/75°F		
	Meter setting EI	**35mm film**	**Roll-film**	**Sheet film**	**35mm film**	**Roll-film**	**Sheet film**
PAN F Plus	25/15	7	7	–	4	4	–
	50/18	8	8	–	5	5	–
FP4 Plus	50/18	8	8	8	6	6	6
	125/22	10	10	10	8	8	8
	200/24	12	12	12	10	10	10
HP5 Plus	400/27	9	9	9	7	7	7
	800/30	10	10	10	8	8	8
	1600/33	13	13	13	10	10	10
	3200/36	20	20	20	14½	14½	14½
100 DELTA PROFESSIONAL	50/18	9½	9½	9½	7	7	7
	100/21	12	12	12	9	9	9
	200/24	14	14	14	11	11	11
400 DELTA PROFESSIONAL	200/24	7	7½	7½	5	6	6
	400/27	9	10	10	7	7½	7½
	800/30	11	12	12	9	10	10
	1600/33	15	17	17	12	15	15
DELTA 3200 PROFESSIONAL	400/27	6	6	–	–	–	–
	800/30	7	7	–	5	5	–
	1600/33	8	8	–	6	6	–
	3200/36	9½	9½	–	7	7	–
	6400/39	12½	12½	–	9	9	–
	12500/42	17	17	–	12	12	–
SFX 200	200/24	10	10	–	7	7	–
	400/27	14	14	–	10	10	–
	800/30	–	–	–	–	–	–

Note Development times may need adjusting to suit individual processing systems and working practices. If an established system is producing good results, adjust the recommended development times until the desired contrast level is obtained. Higher or lower than average contrast negatives may be preferred by some individuals to suit their particular darkroom set-up and working methods.

Development times for other manufacturers' films are included for your convenience, and are only a general guide. Adjust these times to suit your processing system. Other manufacturers can and do change their product specifications from time to time, and the development times may change as a result.

Non-ILFORD films

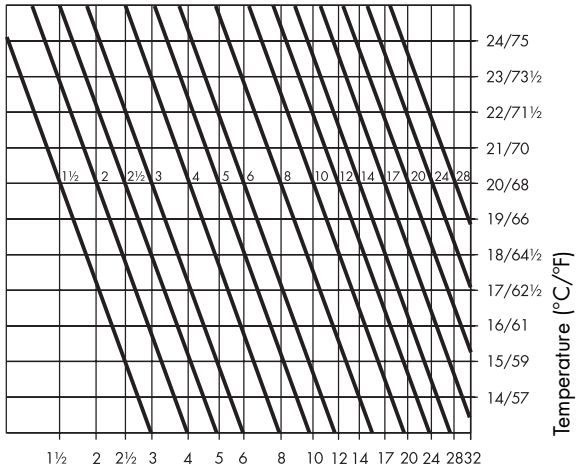
		20°C/68°F			24°C/75°F		
	Meter setting EI	**35mm film**	**Roll-film**	**Sheet film**	**35mm film**	**Roll-film**	**Sheet film**
Kodak Plus-X	64/19	5	5	–	–	–	–
	125/22	6	6	–	4½	4½	–
	200/24	8	8	–	6	6	–
Kodak Tri-X	200/24	6½	6½	6½	4½	4½	4½
	400/27	8	8	8	6	6	6
	800/30	10	10	10	8	8	8
	1600/33	14	14	14	11	11	11
Kodak T-Max 100	100/21	7	7	7	5	5	5
	200/24	9	9	9	7	7	7
Kodak T-Max 400	200/24	7	7	7	5	5	5
	400/27	8	8	8	6	6	6
	800/30	10	10	10	8	8	8
	1600/33	13	13	13	10	10	10
Kodak T-Max 3200	800/30	7½	–	–	6	–	–
	1600/33	9	–	–	7½	–	–
	3200/36	11	–	–	9	–	–
	6400/39	15	–	–	12	–	–
Agfapan 25	25/15	8	–	–	5	–	–
Agfapan 100	50/18	6	6	–	4	4	–
	100/21	7	7	–	5	5	–
	200/24	8	8	–	6½	6½	–
Agfapan 400	200/24	10	10	–	6½	6½	–
	400/27	12	12	–	8	8	–
	800/30	15	15	–	12	12	–
Fuji Neopan 400	400/27	7	–	–	5	–	–
	800/30	10	–	–	8	–	–
Fuji Neopan 1600	800/30	4½	–	–	–	–	–
	1600/33	5	–	–	3½	–	–
	3200/36	9	–	–	6	–	–

PROCESSING AT DIFFERENT TEMPERATURES

ILFOTEC DD-X can be used over a range of temperatures. For best results, however, all processing solutions should be within 5°C/9°F.

Development at 20°C/68°F or 24°C/75°F is recommended and the times are given in the development times table. If development is not possible at either 20°C/68°F or 24°C/75°F, the following chart can be used. The chart is based at 20°C/68°F for a general developer, and can be used to give an estimate of development times at temperatures around 20°C/68°F.

For example, if 4 minutes at 20°C/68°F is recommended, the time at 23°C/73½°F will be 3 minutes and the time at 16°C/61°F will be 6 minutes.



Note Fahrenheit temperatures are given to the nearest half degree.

Note The chart can only be used as a guide because different developers and processing techniques can vary the results.

PUSH PROCESSING

Most ILFORD films can produce high quality prints when exposed at meter settings above their ISO rating. Development times in ILFOTEC DD-X for a range of meter settings are given in the development times table.

SUBSEQUENT PROCESSING STEPS

After development, rinse films in water or an acid stop bath (ILFORD ILFOSTOP or ILFOSTOP PRO). Fix films in ILFORD HYPAM fixer (1+4) or ILFORD UNIVERSAL Rapid Fixer (1+4) at 20°C/68°F for 3–5 minutes with the range of ILFORD DELTA PROFESSIONAL films and for 2–4 minutes with other films.

Wash films in running water for 5–10 minutes at a temperature within 5°C/9°F of the processing temperature. A final rinse in water to which a few drops of ILFORD ILFOTOL wetting agent have been added will aid rapid and uniform drying.

STORAGE

Always store chemicals away from unsupervised children and pets, and preferably in a cool (10–20°C/50–68°F) place. Store them in their original containers.

Full, unopened bottles of ILFOTEC DD-X will keep in good condition for two years. Once opened, use within three months and keep bottles tightly capped.

Diluted ILFOTEC DD-X should not be stored. Make up fresh developer each time and discard it after the processing session.

AVAILABILITY

ILFOTEC DD-X is available in 1 litre bottles of concentrate.

A wide range of fact sheets is available which describe and give guidance on using ILFORD products.

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