

TECHNICAL INFORMATION

KENTMERE FILM PHOTOCHEMICALS

DEVELOPER, STOP BATH & FIXER SOLUTIONS FOR BLACK AND WHITE FILM PROCESSING

Overview

KENTMERE FILM DEVELOPER is a high-quality affordable film developer for the processing of black and white photographic film. Designed to be used at 1+9 dilution it is both economical and easy to use.

KENTMERE STOP BATH is a low odour, acetic acid, indicating stop bath. Diluted at 1+9.

KENTMERE FIXER is an economic rapid fixer designed to be used at 1+9 or 1+4 depending on film type.

KENTMERE film photochemicals produce excellent results with most black and white films and complement the range of Kentmere photographic films.

Mixing instructions

Note Photographic chemicals are not hazardous when used correctly. It is recommended that gloves, eye protection and an apron or overall are worn when handling and mixing all chemicals. Always follow the specific health and safety recommendations on the chemical packaging.

Photochemical material safety data sheets containing full details for the safe handling, disposal and transportation of Kentmere and Ilford chemicals are available from Ilford agents or directly from the ILFORD Photo web site at: www.ilfordphoto.com

Determine first either the tank size being used or the number of films to be processed and measure out the appropriate quantity of concentrates. 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 and stir thoroughly.

As most water drawn from pressure mains is highly aerated, we advise that users draw off the water they need and leave it to stand for a few minutes before using it to make up developers.

Thoroughly wash all utensils, measuring and mixing vessels after use. Do not contaminate developer solutions with either stop bath or fixer solutions.

Kentmere Film Photochemicals

Table of Dilutions

The following table gives a list of common spiral tank sizes - cross referenced with the amount of liquid concentrate and water required to fill the tank.

Dilution 1+9

Tank Size (ml)	Concentrate (ml)	Water (ml)
100	10	90
150	15	135
200	20	180
250	25	225
300	30	270
350	35	315
400	40	360
450	45	405
500	50	450
600	60	540
700	70	630
800	80	720
900	90	810
1000	100	900
2000	200	1800

1 litre = 33.81 US fluid ounces

3.8 litre = 1 US gallon

29.6 ml = 1 US fluid ounce.

Note

We advise not to use amounts of concentrate less than 10ml when mixing working strength solutions as it is difficult to measure accurately such small quantities with a measuring cylinder. If it is necessary to measure out very small quantities, use a graduated pipette.

Kentmere Film Photochemicals

PROCESS SYSTEMS

Manual processing – Spiral Tanks

The following agitation is recommended for spiral tank processing with Kentmere chemicals; Invert the tank four times during the first 10 seconds. Repeat these four inversions during the first 10 seconds of each subsequent minute of development. At the end of each agitation sequence, tap the tank firmly on the work bench to dislodge any air bubbles which may be trapped in the processing spiral. This method of agitation should also be used with the fixer.

Drain off the developer 10 seconds before the end of the development time and then immediately fill the tank with the next process solution.

Dish (tray) processing - Sheet film format

When dish / tray processing continuous agitation is used, immerse the film completely in the developer and gently rock the dish from side to side taking care to avoid any spillage. This method of agitation is used for all subsequent processing steps. Continuous agitation reduces the recommended development times by about 15%.

Remove the film from the dish /tray 10 seconds before the end of the development time and allow developer to drain from its surface before placing it in the stop bath.

Rotary tube processors

Follow any guidance given by the processor manufacturer when adjusting process times for these types of processors. However, generally we do not recommend using a pre-rinse as it can lead to uneven development.

Without using a pre-rinse, the given development times will need to be reduced by around 15% to compensate for the continuous agitation.

DEVELOPMENT TIMES

The table of development times shown below gives an appropriate starting point for Kentmere film developer being developed in spiral tanks with intermittent agitation.

The development times are for films rated at box speed and they should produce negatives of normal contrast. However, they are only a guide and may need to be adjusted to suit individual processing systems, working practices and preferences.

Developer Dilution 1+9	Film Speed (EI / ISO)	20°C/68°F (MIN:SEC)	24°C/75°F (MIN:SEC)
KENTMERE FILMS			
KENTMERE PAN 100	100	5:00	4:00
KENTMERE PAN 200	200	6:00	4:00
KENTMERE PAN 400	400	7:00	5:00
ILFORD FILMS			
DELTA 100 PROFESSIONAL	100	6:00	4:00
DELTA 400 PROFESSIONAL	400	6:00	4:00
DELTA 3200 PROFESSIONAL (EI 1000)*	1000	10:00	7:30
PAN F PLUS	50	5:00	4:00
FP4 PLUS	125	6:00	4:00
HP5 PLUS	400	7:00	5:00
SFX 200	200	8:00	5:30
ORTHO PLUS	80	6:00	4:00

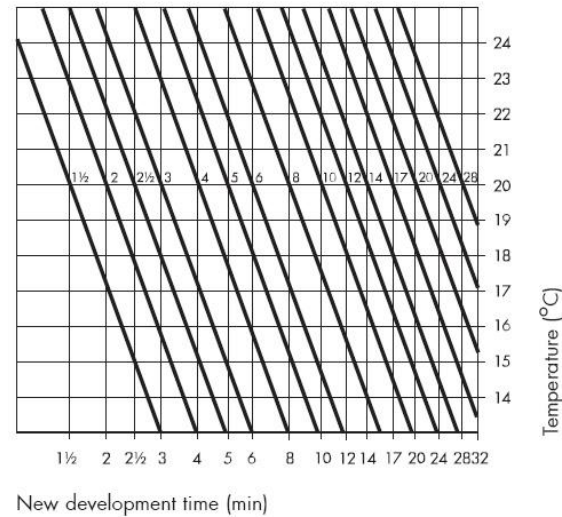
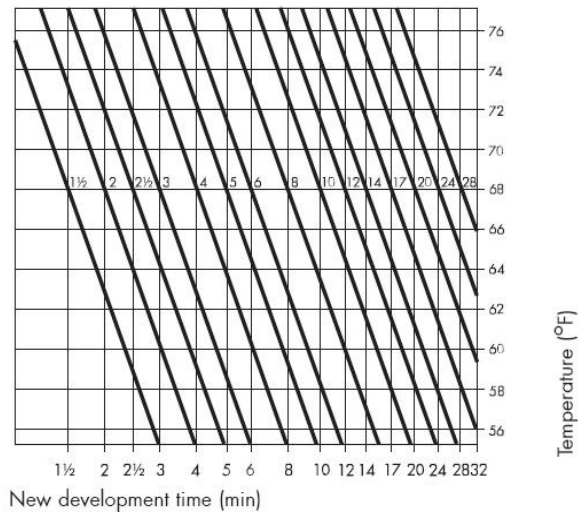
*All films can be rated at box speed except DP3200.

Kentmere Film Photochemicals

Higher or lower contrast negatives may be preferred by some to suit their individual requirements - adjust the recommended development times until the desired contrast level is obtained. Kentmere film developer can be used in the temperature range of 20°-24°C (68°-75°F).

For processing at other temperatures, increase the given times by 10% for each 1°C drop in temperature and decrease the given development times by 10% for each 1°C rise in temperature.

Alternatively use the time temperature graphs below. For example, if 4 minutes at 20°C/68°F is recommended; the time at 23°C / 73°F will be 3 minutes and the time at 16°C / 61°F will be 6 minutes.



REUSING DEVELOPER

For the best image quality Kentmere film developer should be used as a one-shot developer and re-using is not recommended.

WORKING SOLUTION LIFE

Kentmere film developer working strength solutions should not be kept for more than 24 hours. Make up fresh developer each time it is needed and discard it after the processing session.

STOP, FIX, WASH and RINSE

For best results it is recommended that all process solutions are kept at the same temperature or at least within 5°C (9°F) of the developer temperature.

Kentmere Stop Bath

After development the film can be rinsed in water, but for best results we recommend that Kentmere Stop Bath is used. Using a stop bath immediately stops development and reduces carry over of excess developer into the fixer bath. This helps to maintain the activity and prolong the life of the fixer solution.

KENTMERE STOP BATH	
Dilution	1+9
Temperature Range	18–24°C (64–75°F)
Time (sec) at 20°C (68°F)	Approx 10 sec

The process time given is the minimum required, if necessary, a longer time may be used and should not cause any process problems provided it is not excessive. Supplied in 500ml bottles, enough to fix 150 films if the working strength solution is reused during a session. **NB** The stop bath has an indicator dye that changes to purple when exhausted.

Kentmere Film Photochemicals

Kentmere Fixer

Kentmere fixer is normally used at 1+9 dilution, however, to prevent excessively long fix times for ILFORD Delta films an alternative dilution of 1+4 is recommended. Supplied in 500ml bottles enough to fix up to 60 135/36 films if the working strength solution is reused during a session.

Kentmere Fixer

Dilution	1+9 (1+4 for Delta Films)
Temperature Range	18–24°C (64–75°F)
Time (mins) at 20°C (68°F)	3 to 5 mins

Wash

Wash the films in running water for 5–10 minutes at a temperature within 5°C (9°F) of the process temperature. Or see note below for greater economy when using spiral tanks.

Note: For spiral tank use, the following method of washing is recommended. This method of washing is faster, uses less water yet still gives negatives suitable for long term storage.

After fixing, fill the spiral tank with water at the same temperature, $\pm 5^{\circ}\text{C}$ (9°F), as the processing solutions and invert it five times. Drain the water away and refill. Invert the tank ten times. Once more drain the water away and refill. Finally, invert the tank twenty times and drain the water away.

Rinse

For best results a final rinse of ILFORD ILFOTOL wetting agent can be added to water, it helps the film to dry rapidly and evenly.

Drying

To avoid drying marks, use a clean squeegee or chamois cloth to wipe the film before hanging it to dry. Dry at 30–40°C/86–104°F in a drying cabinet or at room temperature in a clean dust-free area.

STORAGE

Always store chemicals in their original containers and away from unsupervised children and pets. In cool, dry conditions, 4–20°C (44–68°F) Kentmere developer concentrate should keep in good condition for:

24 months in full tightly capped bottles.

4 months in half full tightly capped bottles.

AVAILABILITY AND CAPACITY

Kentmere developer is available in 500ml bottles.

Depending upon the tank size used 500 mls of concentrate should develop up to 20 135/36 films.

A wide range of technical information is available which describes and gives guidance on using ILFORD and KENTMERE PHOTO products. Some products in this data sheet might not be available in your country.

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