

## FACT SHEET

# SFX 200

## BLACK AND WHITE CAMERA FILM WITH EXTENDED RED SENSITIVITY FOR CREATIVE PHOTOGRAPHY

### DESCRIPTION

ILFORD SFX 200 is a medium speed black and white camera film for creative photography. It has extended red sensitivity (up to 740nm) and is especially suited for use with a filter to create special effects. Using a very deep red filter, skies can be rendered almost black and most green vegetation almost white. Its unusual tonal rendition ensures interesting results for a range of subjects, including portraits, landscapes, townscapes and architecture.

Best results are often obtained in bright sunshine or in the studio under tungsten lighting.

SFX 200 also has full panchromatic sensitivity to ensure good pictorial contrast with or without the use of a filter. It has a wide exposure latitude, is compatible with all normal developers and has a wide tonal range.

### AVAILABILITY

SFX 200 is coated on 0.125mm/5-mil grey acetate base which gives good halation protection. SFX 200 35mm film is available in 36 exposure DX coded cassettes, suitable for all 35mm cameras. SFX 200 rollfilm is available in 120 lengths and is edge numbered 1 to 19.

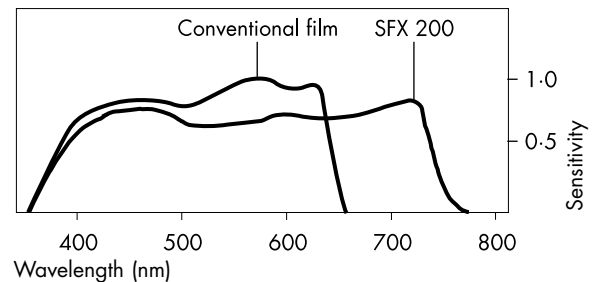
### EXPOSURE RATING

SFX 200 has a speed rating of ISO 200/24° (200ASA, 24DIN, EI 200/24) to daylight. The ISO speed rating was measured using ILFORD ID-11 developer at 20°C/68°F with intermittent agitation in a spiral tank.

It should be noted that the exposure index (EI) range recommended for SFX 200 is based on a practical evaluation of film speed and is not based on foot speed, as is the ISO standard.

### SPECTRAL SENSITIVITY

#### Wedge spectrogram to tungsten light (2850K)



SFX 200 has a peak red sensitivity at 720nm and extended red sensitivity up to 740nm.

### USE OF FILTERS

Any yellow, orange or red filter may be used, but the effect will depend on its transmission characteristics. The redder the filter, the more dramatic the effect. The ILFORD SFX very deep red filter is recommended. Suggested filters include:

#### Filter factors

Filter	Filter colour	Filter factor	Exposure increase (stops)
Kodak Wratten			
3	Very light yellow	2	1
8	Yellow	2	1
12	Deep yellow	2.3	1 1/3
15	Very deep yellow	2.4	1 1/3
21	Orange	2.4	1 1/3
23a	Reddish orange	2.5	1 1/3
25	Red	2.8	1 1/2
29	Deep red	3	1 2/3
89B	Very deep red	16	4
ILFORD			
SFX 200	Very deep red	16	4

#### Very deep red

ILFORD SFX, B+W RG665, B+W 092, Heliopan 695 and 715, Hoya R72 and Kodak Wratten 89B. These filters give an even more dramatic effect than deep red filters. However, exposure times with these filters can be very long, so the use of a tripod is recommended.

#### Deep red

B+W 091, Heliopan 29, Kodak Wratten 29 and Rodenstock 29. These filters give a more dramatic effect than red filters.

**Red**

B+W 090, Cromatek HC4, Cokin 003, Hitech 25, Hoya 25A, Jessop R2, Kodak Wratten 25, Lee 25 and Rodenstock 25. Under some conditions, the effect with these filters can be quite subtle – similar to a normal panchromatic film used with these filters.

Several camera manufacturers also sell similar filters, including Nikon, Canon and Leica.

Filters are available in different forms ranging from gelatin, resin, plastic to glass. This table gives a guide.

Filter	Type
B+W 090, 091, RG665, 092	Glass, screw-in or bayonet
Cokin 003	Resin
Cromatek HC4	Resin
Heliopan 29, 695, 715	Glass, screw-in
Hitech 25	Resin
Hoya 25A, R72	Glass, screw-in or bayonet
ILFORD SFX	Gelatin with or without a mount
Kodak Wratten 25, 29, 89B	Gelatin
Lee 25	Polyester or resin
Rodenstock 25, 29	Glass, screw-in

**Note** Some of these filters may be available only by special order.

**ILFORD SFX FILTER****CHOOSING THE BEST ILFORD DEVELOPER FOR THE JOB****Manual processing (eg spiral tank, deep tank) and rotary processors**

	Liquid	Powder
Best overall image quality at meter setting		
EI 200/24	ILFOTEC DD-X	ID-11 (stock)
EI 400/27	ILFOTEC DD-X	ID-11 (stock)
EI 800/30	ILFOTEC DD-X	ID-11 (stock)
Finest grain	ILFOTEC DD-X	PERCEPTOL
Maximum sharpness	ILFOSOL S	ID-11 (1+1)
Maximum film speed	ILFOTEC DD-X	MICROPHEN (stock)
One-shot convenience	ILFOSOL S	ID-11 (1+1)
	ILFOTEC DD-X	MICROPHEN (1+1)
Economy	ILFOTEC LC29 (1+29)	ID-11 (1+1)
		MICROPHEN (1+1)
Rapid processing	ILFOTEC HC (1+15)	–
Replenishable	ILFOTEC HC	ID-11

**Machine processing**

Dip and dunk	ILFOTEC DD ID-11 ILFOTEC HC	Best overall image quality (liquid) and long tank life Best overall image quality (powder) and long tank life Flexible process time, range of dilutions and economy
Short leader	ILFOTEC RT RAPID  ILFOTEC HC	Rapid processing, best overall image quality and long tank life Range of dilutions, flexibility and economy
Roller transport	ILFOTEC RT RAPID	Rapid processing

The ILFORD SFX deep red filter is recommended for use with this film. It is supplied as 58x58mm (2.3x2.3in) or 75x75mm (3x3in) gelatin sheets. The larger size is also available in a Cokin mount.

**LOADING THE CAMERA**

SFX 200 must be loaded in subdued light. Unlike true infra-red film, it is not necessary to load it in total darkness.

**FOCUSING**

With some lenses, red light focuses at a slightly different point to other visible light. With these lenses there may be a focus shift when focusing in white light compared with red light. However, it is almost impossible to focus a camera with a deep red filter in place.

With short to moderate focal length lenses, this difference can easily be accommodated by stopping down the lens to the smallest workable aperture. Some lenses, particularly apochromatic (APO) designs, may need no correction.

**EXPOSURE**

A certain amount of experimentation is needed when first using this film. As a guide, bracket exposures by  $\pm 2$  stops from the TTL reading with the filter in place or the meter reading with the filter factor applied.

**Note** The TTL metering on some cameras can under expose by up to 1 1/2-stops with deep red or orange filters in place.

If you want to check the TTL metering system on your camera before starting, set the metering system of the camera to EI 200/24 and, with your filter in place, make a series of exposures up to  $\pm 2$  stops from the indicated exposure. After processing decide which is the best negative and re-set the camera if necessary. As an example, the correct exposure in bright sunlight with the ILFORD SFX filter is around  $\frac{1}{30}$  second at f5.6.

### PROCESSING

SFX 200 can be processed in all types of processing equipment including spiral tanks, rotary processors, deep tanks and automatic processors. Standard capacity figures and replenishment rates can be maintained. SFX 200 is very robust in processing and will tolerate less than ideal processing conditions. Also, it will not contaminate the processing chemicals.

### Development times

The table gives development times for both manual and machine processing. 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. For manual processing in spiral tanks and deep tanks, the development times are based on intermittent agitation. Where continuous agitation is used for manual processing (as with some types of processing 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%. Generally, a pre-rinse is not recommended as it can lead to uneven processing.

**Note** Development times may need adjusting to suit individual exposing conditions, processing systems and working practices. Adjust the recommended development times until the desired contrast level is obtained. Development times in other manufacturers' developers are included for your convenience and are only a general guide. Adjust these times, if necessary, to suit your requirements. Other manufacturers can and do change their products' specifications from time to time and the development times may change as a result.

### Development times

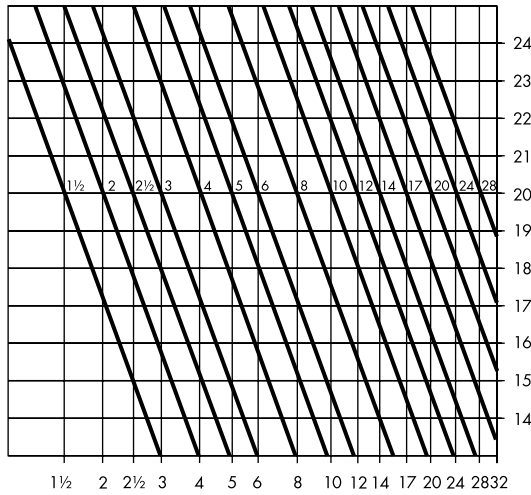
### 35mm film and rollfilm

	Dilution	Meter setting		
		EI 200/24	EI 400/27	EI 800/30
<b>Spiral tank, deep tank, dip and dunk machines (min/20°C/68°F)</b>				
ILFORD developer				
ILFOTEC DD-X	1+4	10	14	–
ILFOSOL S	1+9	9½	11½	19
	1+14	13	19	–
ILFOTEC HC	1+15	5	7	10½
	1+31	9	13	19
ILFOTEC LC29	1+9	5	7	10½
	1+19	9	13	19
	1+29	11	–	–
ID-11	stock	10	14	18
	1+1	17	–	–
MICROPHEN	stock	8½	10½	14½
	1+1	15½	19	–
PERCEPTOL	stock	14½	–	–
	1+1	20	–	–
Non-ILFORD developer				
Agfa Refinal	stock	8	11½	–
Kodak D-76	stock	10	12½	16½
	1+1	14½	–	–
Kodak T-Max	1+4	8½	10½	12½
Tetenal Ultrafin	1+10	10	13	–
<b>Dip and dunk machines (min/24°C/75°F)</b>				
ILFOTEC DD	1+4	8½	11½	14
Kodak T-Max RS	stock	6	7	9
<b>ILFOLAB FP40, roller transport and short leader machines (sec/26°C/78.8°F)</b>				
ILFOTEC RT RAPID	1+1+2	54	65	88
	1+1+5	65	90	120
Kodak Duraflor RT	stock	100	135	200

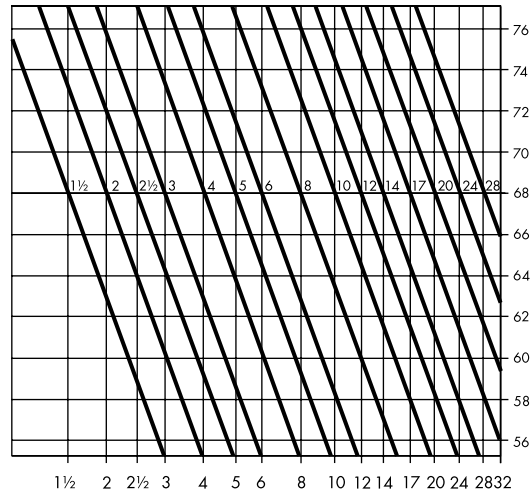
**Processing at different temperatures**

SFX 200 film can be processed over a range of temperatures. Development times at temperatures other than 20°C/68°F may be calculated from the chart 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.



New development time (min)



New development time (min)

**Agitation**

Intermittent agitation is recommended for use in spiral tanks and deep tanks. With spiral tanks, invert the tank four times during the first 10 seconds, then invert the tank four times again during the first 10 seconds of each further minute. Otherwise, follow the recommendations given by the processing equipment manufacturer.

**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.

**Stop Bath**

After development the film can be rinsed in water but we recommend that an acid stop bath is used such as ILFORD ILFOSTOP (with indicator dye) or ILFOSTOP PRO (without indicator dye). ILFOSTOP PRO is recommended for all machine processing applications. When tanks or dishes (trays) of process solutions are in use 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.

ILFORD Stop Bath	ILFOSTOP	ILFOSTOP PRO
Dilution	1+19	1+19
Temperature range	18–24°C (64–75°F)	18–24°C (64–75°F)
Time (seconds) at 20°C (68°F)	10	10
Capacity films/litre (unreplenished)	15x(135–36)	22x(135–36)

Temperature (°C)

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.

**Fix**

The recommended fixers are ILFORD RAPID FIXER and ILFORD HYPAM liquid fixers and ILFORD ILFOFIX II powder fixer, all are non-hardening fixers.

ILFORD Fixer	ILFORD HYPAM & ILFORD RAPID FIXER	ILFORD ILFOFIX II
Dilution	1+4	stock
Temperature range	18–24°C (64–75°F)	18–24°C (64–75°F)
Time (mins) at 20°C (68°F)	2–5	4–8
Capacity films/litre (unreplenished)	24x(135–36)	24x(135–36)

Temperature (°F)

**WASH**

When a non-hardening fixer has been used wash the films in running water for 5–10 minutes at a temperature within 5°C (9°F) of the process temperature.

For spiral tank use, when a non-hardening fixer has been used, 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 a final rinse use ILFORD ILFOTOL wetting agent added to water, it helps the film to dry rapidly and evenly. Start by using 5ml per litre of rinse water (1+200), however the amount of ILFOTOL used may need some adjustment depending on the local water quality and drying method. Too little or too much wetting agent can lead to uneven drying. Remove excess rinse solution from the film before drying.

**FIX HARDENER**

ILFORD RAPID FIXER and ILFORD ILFOFIX II must not be used with fix hardeners as they are not compatible with them. If a fix hardener is required then only ILFORD HYPAM fixer can be used. Add ILFORD HYPAM HARDENER to turn HYPAM into a hardening fixer.

Generally for most applications modern camera films are sufficiently hardened at manufacture. Additional hardening from a fixer hardener is not usually needed or recommended for processing in spiral tanks, dishes/trays, deep tanks, rotary processors, dip and dunk (hanger) machines and short leader card processors, unless the processing temperature is above 30°C (86°F), or poor drying performance is being experienced. To minimise the risk of physical damage a fixer hardener may be needed when using a roller transport film processor.

Using a fix hardener will require the recommended fix and wash times to be extended. Depending on the film and processing conditions the hardened fix time will be between 4 and 10 minutes and the subsequent wash time 10–20 minutes in running water.

The amount of HYPAM HARDENER that can be added to the fixer is dependant on the film and process conditions used. In some processors the full amount of hardener cannot be used as the fix and wash times cannot be extended adequately. In these circumstances we recommend starting with

the minimum amount of hardener to have some effect. This is around 3–6 mls of hardener per litre of working strength HYPAM used. This increases the film hardness slightly but has a negligible effect on the fix and wash efficiency. When fix and wash times are restricted the maximum amount of HYPAM HARDENER recommended is 10–20ml of hardener per litre of working strength HYPAM used. This higher amount gives a definite increase to the hardness of the films processed and while fixing and washing efficiency are reduced the films will be adequately fixed and washed for most purposes.

When fix and wash times can be extended the maximum amount of HYPAM HARDENER needed to achieve fully hardened films is 1 part to 40 parts working strength HYPAM i.e. 24 ml per litre.

**Drying**

To avoid drying marks, use a clean squeegee or chamois cloth to wipe SFX 200 film before hanging it to dry. Dry SFX 200 at 30–40°C/86–104°F in a drying cabinet or at room temperature in a clean dust-free area.

**PRINTING**

SFX 200 negatives can be printed in a similar way to conventional panchromatic films. However, because of the shift in relative tonal values a degree of experimentation may be necessary to get the desired result.

Experienced rollfilm users will notice that SFX 200 rollfilm negatives feel and look a little different to other ILFORD rollfilms. This makes no difference to the final prints.

The range of ILFORD MULTIGRADE variable contrast papers is particularly recommended.

**STORAGE**

Store SFX 200 in a cool (10–20°C/50–68°F), dry place in its original packaging.

**Exposed film**

Once exposed, process SFX 200 as soon as practical. Images on exposed but unprocessed film will not degrade for up to several months when stored as recommended.

**Negatives**

Store processed negatives in a cool (10–20°C/50–68°F), dry place, in the dark. Suitable storage sleeves include those made of cellulose triacetate, Mylar, paper (pH6.5–7.5) or inert polyester.

A wide range of fact sheets is available which describe and give guidance on using ILFORD products. Some products in this fact sheet might not be available in your country.

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