

TECHNICAL INFORMATION

MULTIGRADE IV FB FIBER

PREMIUM QUALITY VARIABLE CONTRAST PAPER ON A FIBRE BASE

ILFORD MULTIGRADE IV FB Fiber is a premium quality variable contrast black and white paper on a 255g/m² fibre base.

MULTIGRADE IV FB Fiber is part of the ILFORD MULTIGRADE system and is fully compatible with all existing MULTIGRADE filters and equipment. It is equally suitable for printing from conventional negatives and from XP2 SUPER negatives.

MULTIGRADE IV FB Fiber is available in double weight (1K) glossy surface and (5K) matt surface.

EXPOSURE

MULTIGRADE IV FB Fiber is designed for use with all enlargers.

Safelight recommendations MULTIGRADE IV FB Fiber can be used with most common safelights for black and white papers. The ILFORD safelights are especially recommended as they generally allow darkrooms to be brighter, but completely safe, for MULTIGRADE IV FB Fiber and many black and white papers.

ILFORD safelights are the ILFORD SL1 darkroom safelight or the ILFORD 902 (light brown) safelight filter fitted in a darkroom lamp (for example, the ILFORD DL10 or DL20). A 15W bulb is recommended with these safelights.

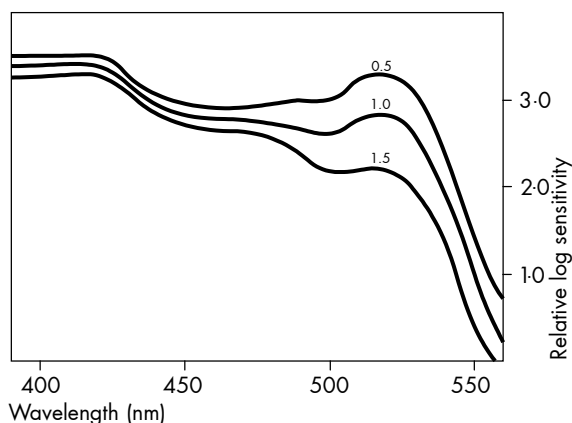
For direct lighting, do not expose the paper to the safelight for more than 4 minutes, and the distance between the paper and the safelight should be a minimum of 1.2m/4ft.

Other safelight filters can be used, for example, the Kodak OC and the Agfa-Gevaert G7, or the Philips PF710 safelamp.

Spectral sensitivity

MULTIGRADE IV FB Fiber was tested unfiltered to produce the following curves at density 0.5, 1.0 and 1.5.

Equal energy



Contrast range

Seven full grades of contrast, in half grade steps, are available on MULTIGRADE IV FB Fiber paper when used with the ILFORD MULTIGRADE speed-matched filters.

The chart gives the ISO range figures (ISO standard 6846 – 1992) for MULTIGRADE IV FB Fiber. These figures give a guide to selecting the appropriate grade of paper for a given effective negative density range.

MULTIGRADE IV FB Fiber unfiltered has an ISO range of R100.

ISO range

MULTIGRADE IV FB Fiber paper and MULTIGRADE filters

Filter	00	0	1	2	3	4	5
Range (R)	170	150	130	100	80	60	40

The above values are representative of those obtained when dish/tray processing the paper to ILFORD recommendations.

ISO range figures may be helpful to printers who have some means of measuring the effective density range of the image as projected on the enlarger baseboard – such as with a photometer. As an example, for a negative with an effective density range of 1.32 log exposure units, multiply this figure by 100 and choose the nearest ISO range figure from the table – in this case 130. Try printing this negative with MULTIGRADE filter 1 on MULTIGRADE IV FB Fiber paper.

ISO speed

The speed of MULTIGRADE IV FB Fiber depends on the filtration used during exposure. MULTIGRADE IV FB Fiber unfiltered, has a paper speed of ISO P500.

ISO paper speed

MULTIGRADE IV FB Fiber paper and MULTIGRADE filters							
Filter	00	0	1	2	3	4	5
Speed (P)	200				200	100	100

The above values are representative of those obtained when dish/tray processing the paper to ILFORD recommendations.

Exposing light sources

MULTIGRADE IV FB Fiber is designed for use with most enlargers and printers, that is, those fitted with either a tungsten or tungsten halogen light source. It is also suitable for use with cold cathode (cold light) light sources designed for variable contrast papers. Other cold cathode (cold light) and pulsed xenon light sources may give a reduced contrast range.

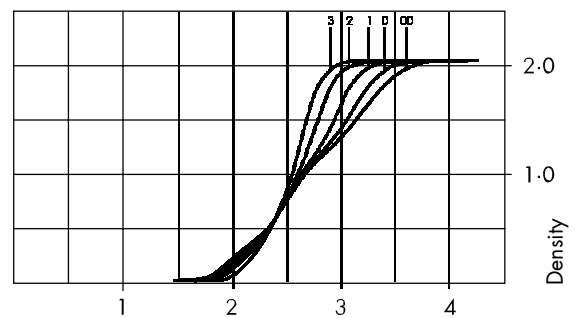
Contrast control

Contrast is controlled by using MULTIGRADE hand filters, the new MULTIGRADE 600 equipment, other MULTIGRADE equipment, variable contrast enlarger heads or colour enlarger heads.

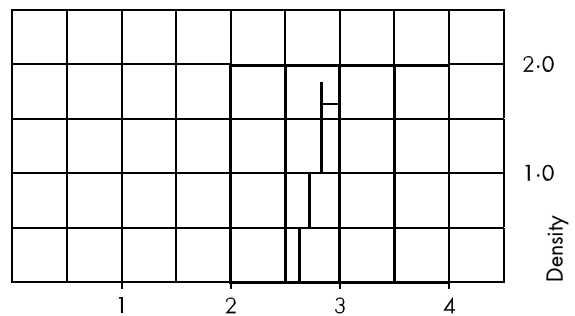
The twelve MULTIGRADE filters are numbered 00–5 in 1/2 steps, with the lowest filter number corresponding to the softest contrast. The exposure time for filters 00–3 1/2 is the same; that for filters 4–5 is double.

The ILFORD MULTIGRADE 600 exposing system replaces the standard lamphouse on most professional enlargers.

Characteristic curves



Relative log exposure



Relative log exposure

MULTIGRADE IV FB Fiber glossy paper exposed through filters 00, 0, 1, 2, 3, 4 and 5. Developer: MULTIGRADE diluted 1+9. Development: 2 minutes at 20°C/68°F.

PROCESSING

MULTIGRADE IV FB Fiber is processed in the same way as other fibre base papers.

Note Photographic chemicals are not hazardous when used correctly. Always follow the health and safety recommendations on the packaging. Photochemicals material safety data sheets containing full details for the safe handling, disposal and transportation of ILFORD chemicals are available from ILFORD.

Processing summary (intermittent agitation)

ILFORD chemical	Dilution	°C/°F	Time (min:sec)
Development			
MULTIGRADE	1+9	20/68	1:30–3:00
or			
MULTIGRADE	1+14	20/68	2:00–5:00
or			
BROMOPHEN	1+3	20/68	1:30–3:00
or			
PQ UNIVERSAL	1+9	20/68	1:30–3:00
Stop bath			
ILFOSTOP	1+19	18–24/64–75	0:10
or			
ILFOSTOP PRO	1+19	18–24/64–75	0:10
Fixation			
ILFORD RAPID FIXER or HYPAM	1+4	18–24/64–75	1:00
	1+4	18–24/64–75	1:00
Washing			
Fresh, running water	–	Above 5/41	60:00

Development

See the 'Processing summary' for development recommendations.

On correctly exposed prints with MULTIGRADE developer 1+9, the image will begin to appear after 35 seconds. Development can be extended up to 6 minutes without any noticeable change in contrast or fog.

To give greater control during development, and for economy, the 1+14 dilution of MULTIGRADE developer can be used.

MULTIGRADE IV FB Fiber paper can also be processed in other high quality dish/tray developers.

Stop bath

See the 'Processing summary' for stop bath recommendations.

The use of a stop bath is strongly recommended. A stop bath stops development immediately, reduces the risk of staining and will extend the life of the fixer bath.

Fixation

See the 'Processing summary' for fixing recommendations.

The use of a hardening fixer is not recommended as it reduces washing efficiency. ILFORD RAPID FIXER and HYPAM are non-hardening fixers.

There is no benefit in extending fixation beyond the recommended time; some loss of print quality might be seen when long fixing times are given due to image etching.

Washing

See the 'Processing summary' for washing recommendations.

Drying

A final rinse in ILFORD ILFOTOL, diluted 1+200 with water, will aid even and rapid drying.

After washing, squeegee prints on both sides to remove surplus water. Prints can be clipped back-to-back to minimise curl and air-dried at room temperature, or glazed/ferrotyped or heat-dried.

OPTIMUM PERMANENCE

The standard fixing and washing recommendations will give excellent print permanence for all commercial needs. When optimum permanence is needed, perhaps for archival storage of prints, the following fixing and washing sequences at 18–24°C/65–75°F (including wash water) are recommended using ILFORD WASHAID. Do not add a hardener to the fixer. Be careful not to exceed the capacity of the fixer and not to extend the fixing time as both these make washing more difficult.

Optimum permanence sequence

Fixation	ILFORD RAPID FIXER (1+4) or HYPAM (1+4) intermittent agitation	1 min 1 min
First wash	Fresh, running water	5min
Washing aid	ILFORD WASHAID (1+4) intermittent agitation	10min
Final wash	Fresh, running water	5min

Optimum permanence sequence with selenium toner

Fixation	ILFORD RAPID FIXER (1+4) or HYPAM (1+4) intermittent agitation	1 min 1 min
Toning	Selenium toner diluted with working strength ILFORD WASHAID instead of water, intermittent agitation	*min
Rinse	ILFORD WASHAID (1+4), intermittent agitation	10min
Final wash	Fresh, running water	30min

* Tone the print for the appropriate time to achieve the depth of colour needed.

FINISHING

MULTIGRADE IV FB Fiber responds in the same way as other fibre base papers to the usual techniques of toning, chemical reduction and retouching. It can be mounted using the standard techniques for fibre base papers.

STORAGE**Unprocessed paper**

Store unused MULTIGRADE IV FB Fiber paper in a cool, dry place in its original packaging. Avoid conditions of high temperature and/or high humidity. MULTIGRADE IV FB Fiber will keep in excellent condition for up to two years when stored as recommended.

Prints

MULTIGRADE IV FB Fiber prints which have been processed as recommended in this leaflet will have a more than adequate storage life for most purposes. Print life will be shortened, however, in adverse storage conditions, or if the print is exposed to oxidising gases.

It is recommended that prints made for display are toned to protect them from the oxidising gases that are found in many environments. Selenium toner is recommended as it has little effect on the image colour of MULTIGRADE IV FB Fiber, but other protection methods can be used including sulphide toning, silver image stabilisers and laminating. ILFORD ILFOGUARD laminating and encapsulating films are recommended.

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.