

Data File

ILFOSPEED MULTIGRADE

Prepared by the Durst Darkroom Club in association with Practical Photography

ILford Ilfospeed Multigrade material enables high-quality black-and-white prints to be made from a wide range of negative contrasts, using just one paper in conjunction with seven filters.

The grade required is selected by using one of the filters or no filter at all, giving a choice of eight grades in all. These eight grades cover a range of contrasts equivalent to rather more than grades 0 to 4 in conventional Ilfobrom or Ilfospeed terms.

The paper is a resin-coated material and is part of a complete Multigrade system which includes a special developer, the range of filters and an exposure calculator.

The main advantage of Ilfospeed Multigrade is that it allows virtually every negative, no matter how flat or contrasty, to be printed on a single type of paper. It eliminates the need to stock several different grades of each paper size, offering great savings in outlay.

The paper

Ilfospeed Multigrade is a medium-weight paper laminated on both sides with a polyethylene coating. It gives a neutral black image colour and has a pure white base.

This coating on the paper base makes it firmer and flatter than conventional papers; it can be easily inserted into the masking frame, or even exposed without a frame to make borderless prints. It also remains flatter than ordinary paper during and after processing.

The plastic coating prevents the paper base from absorbing chemicals, so it needs to be washed for only 2 minutes after fixing.

Although the paper is designed primarily for use in enlargers with a tungsten light source, a cold-cathode light

source can also be used. However, this type of lighting is predominantly blue in colour, so the contrast range of the paper is compressed. This can be corrected by placing a yellow filter up to approximately CC70Y in the light path of the enlarger. The Multigrade filters can then be used in the usual way, but the contrast may be slightly different with each filter from that produced by a tungsten enlarger.

Safelight

Ilfospeed Multigrade can be handled in the same safelighting recommended for Ilfobrom and Ilfospeed papers. This is an Ilford 902 (light brown) safelight filter (or the equivalent) used with a 15 watt bulb at a distance of at least 1 metre.

Alternatively, the Durst SAFIL or TRICOLOR safelights can be used with the appropriate screen.

Multigrade filters

The filters for Ilfospeed Multigrade paper have been selected to give seven contrast steps and are surface-coated on tough, clear polyester 0.18mm (0.07in) thick.

The filters are made to a very high optical standard, so the negative can be finely focused before placing the filter in position ready for the exposure. This is a particularly useful feature when the higher contrast filters are used, or when the negative is very dense.

Ilfospeed Multigrade filters are available in two forms. You can buy them as a complete kit in plastic mounts numbered 1 to 7, together with a filter holder designed to clamp onto the enlarger lens and a plastic storage container.

The holder will fit all lenses with an external diameter of 53mm or smaller.

The storage container protects the filters from dust and dirt when not in use and displays each filter for easy identification. Two mounting holes in the underside of the container enable it to be fixed to a wall or bench near the enlarger.

Alternatively, the filters are available unmounted for use above the enlarger lens and negative in a filter drawer. This is the best method for users of Durst enlargers fitted with a filter drawer, since it eliminates the risk of image degradation due to dust and scratches on filters used under the lens.

The filters are not easily scratched and are resistant to most chemicals usually found in the darkroom, including developers and fixers. If they do become marked with fingerprints or chemicals, they can be cleaned with a tissue moistened with water containing a few drops of wetting agent.

Naturally, the exposure required for Multigrade paper varies with the filter being used. Without a filter, the paper needs rather less exposure than Ilfospeed and Ilfobrom. The calculator supplied with the filters helps in determining the new exposure when changing filters. Filter factors are given in Table 1.

Using a colour head

Users of Durst colour enlargers with a built-in colour mixing head — or other enlargers with colour heads — can use Ilfospeed Multigrade paper without buying a set of filters, although it is not possible to achieve the same high contrast obtainable with Multigrade filters.

However, it is not often that such a high contrast paper is needed — if necessary, the colour head can be supplemented with the

Data File

number 7 filter.

Table 2 gives the relationship between Multigrade and Ilfobrom/Ilfospeed, together with the Durst filtration necessary to produce each grade.

Another advantage of using Multigrade paper with a colour mixing head is that the contrast can be varied continuously. If one grade is too soft and the next is too hard, dial in filtration between the two to give a half-grade, a quarter-grade, or any intermediate value.

TABLE 1
Filter factors for Ilfospeed Multigrade filters.

| Filter | Factor |
|--------|--------|
| 1 | 1.25 |
| 2 | 1.0 |
| 3 | 0.9 |
| 4 | 1.0 |
| 5 | 1.25 |
| 6 | 1.65 |
| 7 | 3.1 |
| none | 0.63 |

Example: If a print using filter number 4 needs 8 seconds exposure, the same negative printed with filter number 6 will need $8 \times 1.65 = 13.2$ seconds. 13 seconds would be close enough. The Multigrade calculator gives a simpler method of obtaining the same results.

TABLE 2
Relationship between Ilfospeed/Ilfobrom and Multigrade, with Durst filtration for each grade.

| Ilfobrom/Ilfospeed | 0 | 1 | 2 | 3 | 4 | 5 | |
|--------------------|------|------|------|------|-----|------|------|
| Multigrade | 1 | 2 | 3 | N 4 | 5 | 6 | 7 |
| Contrast scale | 1.72 | 1.58 | 1.38 | 1.18 | 1.0 | 0.85 | 0.75 |
| Durst filters | 30Y | 20Y | 10M | 35M | 50M | 70M | 115M |

N = no filter; contrast scale 1.23

TABLE 3
Processing summary.

| Step | Solution | Dilution | Time | Temperature |
|-------------|----------------------|----------|--------|---------------------|
| Development | Multigrade Developer | 1+9 | 1 min | 20°C |
| Stop Bath | IN-1 | 1+40 | 30 sec | 20°C |
| Fixer | Ilfospeed | 1+3 | 30 sec | 20°C |
| Wash | Running Water | — | 2 min | Not lower than 5°C. |
| Dry | | | | |

Two grades on a sheet

The ability to change the contrast of Multigrade by using different filters opens up many possibilities.

For example, one part of a negative can be exposed through a soft filter and another part through a hard filter, giving the equivalent of two different grades on one sheet of paper.

The sky in a landscape can be enhanced in this way if the foreground is low in contrast. Expose the whole negative through a number 6 or 7 filter to give added contrast to the foreground. Then shade the foreground while exposing the sky area through a number 2 or 3 filter. This produces good graduation in the sky instead of a blank white area.

Processing

Part of the Ilfospeed Multigrade system is a special developer — Ilfospeed Multigrade developer — which maintains the Ilfospeed tradition of short development times. The image appears after ten seconds and development is complete after one minute, though leaving the print in the developer for two minutes reinforces the blacks and gives the print extra punch.

Conventional dish developers such as Johnsons Bromide, Ilford PQ Universal, and Paterson Acuprint can also be used, but in this case the image appears after about thirty seconds and development takes two minutes.

Ilfospeed Multigrade developer is supplied as a liquid concentrate which is diluted with nine parts of water for use. While the recommended development time is one minute, the print can be removed from the developer after only 35 seconds to enable over-exposed prints to be processed without any noticeable difference from those correctly exposed and processed.

One litre of working strength Multigrade developer will develop about seventy 10 x 8in prints without loss of quality.

After development, the prints should be rinsed in a stop bath made from Ilford IN-1 concentrate diluted with forty parts of water and then transferred to Ilfospeed fixer diluted 1+3. Agitate the prints initially; fixing is complete in thirty seconds at 20°C.

Hardening fixers are not recommended as, say Ilford, they increase the necessary wash time to thirty minutes.

When processed as recommended, wash times are very short. To ensure prints are completely free from chemicals, rinse them for two minutes in running water at a temperature not lower than 5°C. Prints can be washed for as little as thirty seconds at 20°C if they are needed in the shortest possible time and they will still have a high degree of permanence.

For the best results, dry Ilfospeed Multigrade prints by heat in a dryer such as the Durst FRC400. They can also be dried by pegging them up or laying them out face up. Do not try to glaze the prints or dry them on a drum or flatbed dryer as this can cause softening of the polyethylene coating.