TECHINCAL INFORMATION

SAFELIGHT FILTERS AND DARKROOM LAMPS

A RANGE OF HIGH QUALITY FILTERS AND LAMPS FOR DARKROOM ILLUMINATION

DESCRIPTION

ILFORD manufacture a range of high quality safelight filters suitable for use with a wide range of sensitised products including black and white films and papers, panchromatic colour papers and ILFOCHROME.

Three darkroom lamps are available to suit both professional and amateur requirements. Each is designed to give effective and safe illumination in a wide range of conditions. The ILFORD SL1 and DL10 lamps may be used on the bench or may be wall mounted; the ILFORD DL20 lamp is designed to be hung from the ceiling, giving both direct and indirect light.

FILTER CONSTRUCTION

ILFORD safelight filters comprise one piece of glass coated with coloured gelatin and one piece of clear glass, bound up with a diffuser. Clear safelights, ie without a diffuser, can be supplied on request. The ILFORD 915 safelight filter is the exception – it is supplied clear unless otherwise requested.

APPLICATIONS OF ILFORD FILTERS

For a particular photographic material the term safelight is defined as the illumination that does not cause a significant visible change to it during use.The table below describes the uses of each ILFORD safelight filter available.

NB The word 'safe' in 'safelight' is relative as in most cases a sensitised material will eventually be affected by its safelight if it is exposed to it for an extended time period. There are many photographic materials that need handling in total darkness.

Safelight	Colour	Use
SL1	Orange	Blue sensitive materials, including MULTIGRADE IV RC DELUXE MULTIGRADE IV RC PORTFOLIO MULTIGRADE RC COOLTONE MULTIGRADE RC WARMTONE MULTIGRADE RC EXPRESS PF MULTIGRADE IV FB FIBER MULTIGRADE FB WARMTONE ILFOSPEED RC DELUXE ILFOBROM GALERIE FB papers. Also photolettering film and paper.
902	Light brown	As SL1 above
904	Dark-brown	Fast, blue sensitive materials such as line film and electron microscopic film and some photographic papers.
906	Dark red	Orthochromatic materials and recording materials.
907	Dark green	Very slow panchromatic materials.
908	Very dark green	All panchromatic materials, colour papers and ILFOCHROME. Although designed for the maximum possible efficiency, this safelight must be used with extreme care. Fast panchromatic materials must not be exposed to direct light from this filter for any appreciable length of time.
914	Sepia	X-ray films
915	Light red	Orthochromatic materials such as graphic arts materials
916	Green	Red sensitive holographic plates
917	Infra-red transmitting	For use with infra-red image intensifiers

DARKROOM LAMPS

SL1 darkroom safelight

The ILFORD SL1 darkroom safelight is designed for use with black and white photographic papers. It can be placed on a bench or hung on a wall using the bracket supplied. By tilting the safelight, the angle of illumination can be controlled precisely, to cover a wide area. For maximum safety, sensitised materials should be exposed and processed at least 1.2m (4ft) away from the safelight. The safelight is made from high quality, flame retardant, ABS plastic and polycarbonate materials. The clip-on orange filter supplied with the lamp is easily removed to provide easy access when changing the bulb. Replace the bulb with a standard 15W E14 bulb. The mains lead is supplied with a moulded two-pin plug.

The SL1 is available in the following models:
240V E14 (UK)
220V E14 (Europe)
240V BC (Australia)
100V E26 (Japan)

DL10 professional darkroom lamp The ILFORD DL10 professional darkroom lamp is designed for use with the range of 20.3x25.4cm (8x10inch) ILFORD safelight filters. It can stand on a bench or be mounted on a wall using the metal bracket supplied. The direction of lighting can be controlled precisely by rotating the lamp horizontally or vertically on the bracket. The DL10 professional darkroom lamp is manufactured from flame retardant, ABS plastic. It uses a standard 15W BC or E27 bulb, and the mains lead is supplied with a moulded two-pin plug and in-line on/off switch.

The DL10 is available in the following models:
240V BC (UK)
220V E27 (Europe)
240V BC (Australia)

DL20 professional hanging darkroom lamp

The ILFORD DL20 professional darkroom lamp is designed for use with the range of ILFORD safelight filters. It is designed to be suspended from the ceiling and is supplied with four chains, each 900mm (35in) long, for this purpose. The DL20 darkroom lamp has provision for two safelight filters, a lower and an upper, to provide direct and reflected light. The lower filter is 20.3x25.4cm (8x10inches): the upper filter is 25.4x30.0cm (10x12inches). The DL20 lamp is made of metal and uses a standard 15W (or 25W in high ceiling darkrooms) BC or E27 bulb.

The DL20 is available in the following models:
240V BC (UK)
220V ES (Europe)

USING DARKROOM SAFELIGHTING It is desirable to have the brightest safelight possible in a darkroom. There are, however, several factors that influence the effectiveness and safety of darkroom lighting:

- the sensitivity of the material being used;
- the shape and size of the darkroom lamp;
- the strength of the bulb used;
- direct or indirect lighting;
- the distance between the lamp and work place;
- clear or diffused safelight filter;
- the size of the darkroom;
- the colour of the walls and ceiling;
- the age of the safelight filter.

If a safelight is in use for long periods, such as several hours a day it will gradually fade with use and become less effective. To offset this the filter should be changed each year and the date of installation recorded.

It is possible for safelighting to appear safe, but be causing low level fogging. This may not be seen as safelight fog, but only as a general loss of photographic quality, particularly reduced contrast and lack of clear highlights. the apparent colour of a safelight filter is not always a good enough guide to the wavelength of light transmitted. The transmission data for ILFORD filters is given below.

If unsafe darkroom illumination is suspected, first check that the bulbs in each safelight lamp are of the recommended power. Then with all safelighting switched off, check that no light is leaking into the room, under doors etc. Remember that the only satisfactory way of checking this is to wait until your eyes have adapted to the dark, which can take about 15 minutes. Finally check that no white light is leaking from the side of the enlarger or darkroom lamps. Correct any deficiencies you find before proceeding to test the safelight filters.

Testing safelights

The test described below not only checks the safety of darkroom lighting for obvious safelight fog, but also for the changes caused by low level safelight exposure before and after the exposure made in the enlarger.

1 With all the room lights and safelights switched off, make a series of test exposures onto a sheet of the test paper, using the enlarger with no negative in the negative carrier. Process this test strip and find out the exposure needed to produce a pale grey tone, approximately 0.2–0.3 in density.

2 Using the settings determined in step 1, in total darkness, expose part of another sheet of test paper to make a pale grey tone. Label this area 'After exposure'. You may find it helpful to put a notch in one edge, so you can easily locate the exposed area, see diagram 1 below.

3 With all the lights still switched off take this exposed material to the working area where the level of safelight illumination is to be tested. Often the place of most safelight exposure is at the developing dish.

4 Use a piece of card to make a series of exposures to the safelight, on the same sheet. Use 4 steps of about 0, 1, 2 and 4 minutes, as shown in diagram 2.

   This test checks the effect of the safelight on the paper after exposure in the enlarger. This is the more critical part of the test because paper is more sensitive to safelight fogging after it has been exposed in the enlarger than before.

   This is checking for latentsification.

5 As shown in diagram 3, make a second exposure under the enlarger (still with the room lights and safelights off), using the same settings as in step 1. Use the mark on the edge of the material to make sure the second exposure does not overlap the first. Label this area 'Before exposure'.

   This is checking for hypersensitisation.

6 Process the sheet of paper in total darkness using its standard process sequence.

7 Examine the processed sheet. This test will show if safelighting in the area of the room tested should be altered in any way. If there is no density change between 0 safelight exposure and 4 mins the safelight conditions are safe. If there is a small density change (approx. 0.04 in density) after just 1 minute the safelight conditions are inadequate Typically good results will leave a small density change (0.2–0.4) on the 'after exposure' strip after 4 minutes exposure to the safelight.Overall if the maximum 'safe' period shown by the strip is shorter than the time the material would normally be exposed to safelighting, then the lighting must be changed. This may simply require reducing the strength of the bulbs or moving the darkroom lamps further from the sensitive material. If the safelight filters are old, they may have faded and should be replaced.

   As a general rule, keep the time that sensitive materials are exposed to safelighting to a minimum and always store unexposed material in a light-tight container.

For ILFORD black and white papers the general recommendation is to use either the SL1 or 902 safelight with a 15W bulb a distance not less than 1.2m (4ft). They should be safe for up to 4 minutes.

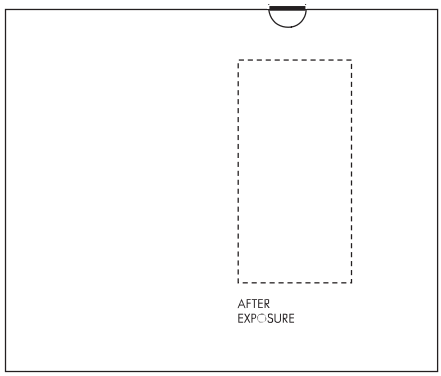


Diagram 1

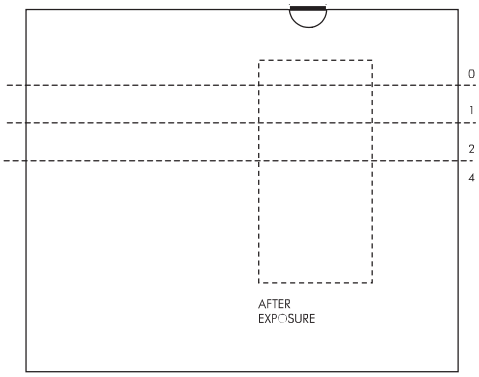


Diagram 2

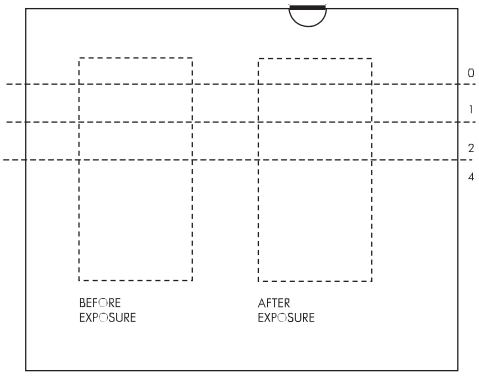
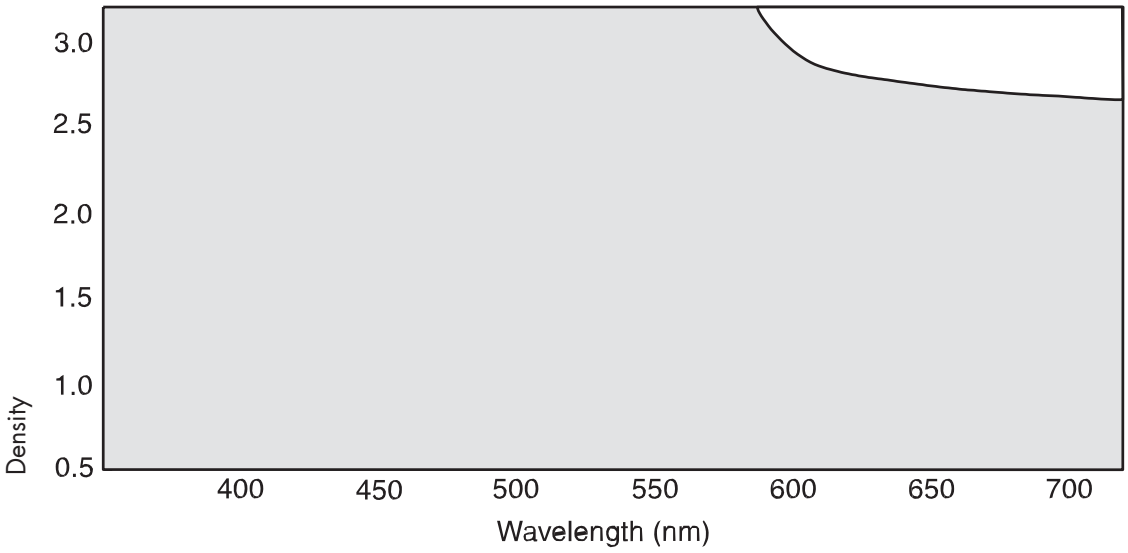


Diagram 3

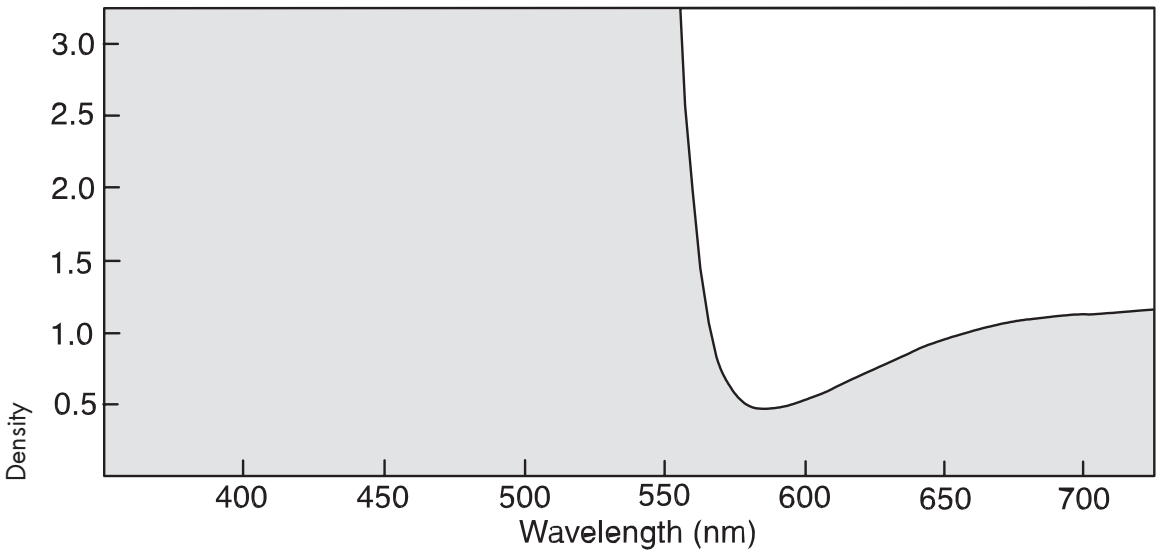
ABSORPTION CURVES FOR ILFORD SAFELIGHT FILTERS

ILFORD SL1

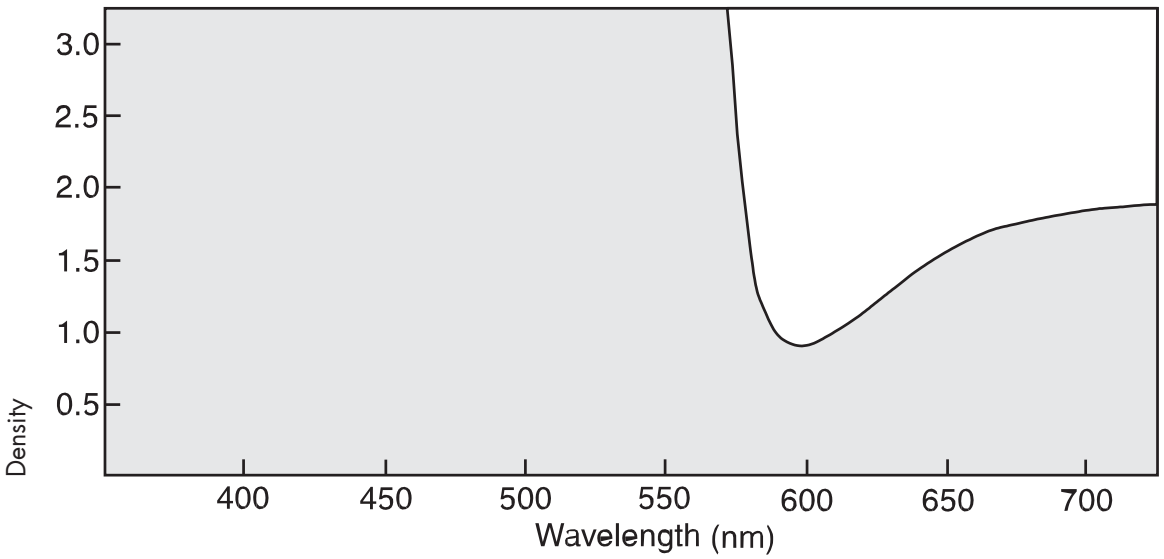


ABSORPTION CURVES FOR ILFORD SAFELIGHT FILTERS

ILFORD 902

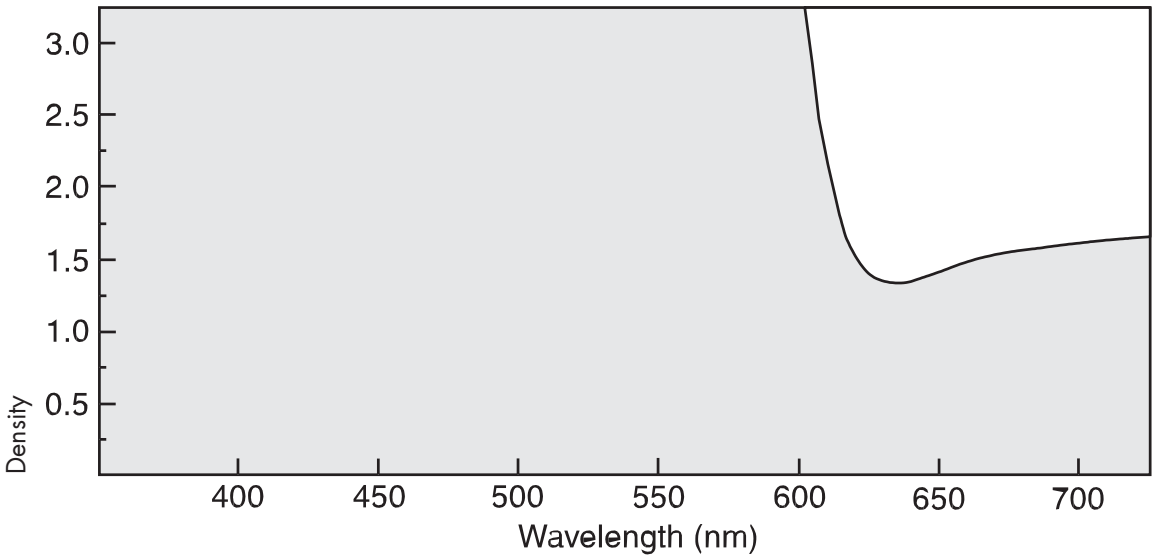


ILFORD 904

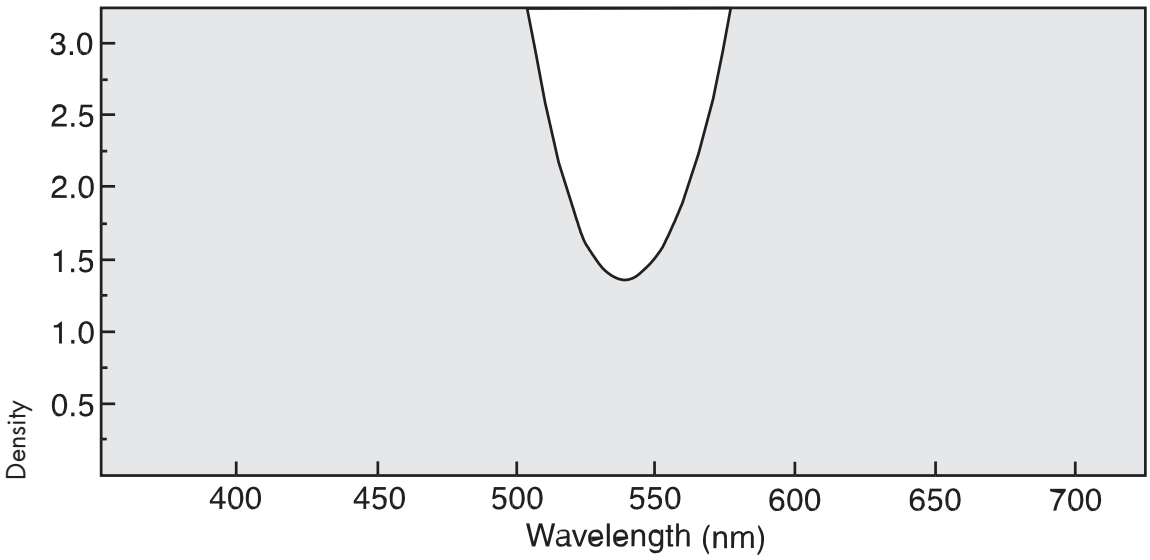


ABSORPTION CURVES FOR ILFORD SAFELIGHT FILTERS

ILFORD 906

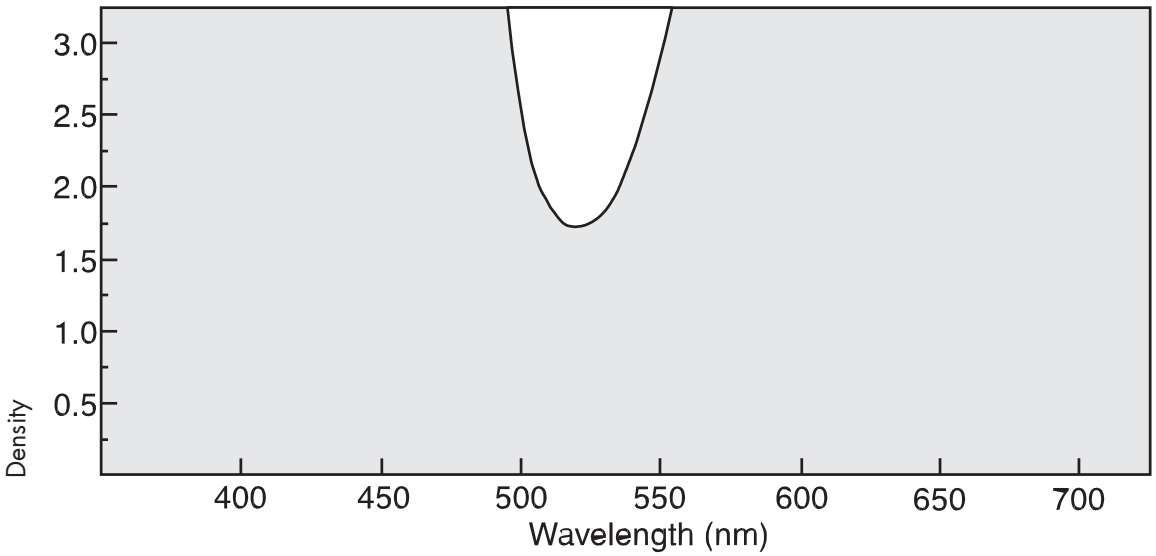


ILFORD 907



ABSORPTION CURVES FOR ILFORD SAFELIGHT FILTERS

ILFORD 908



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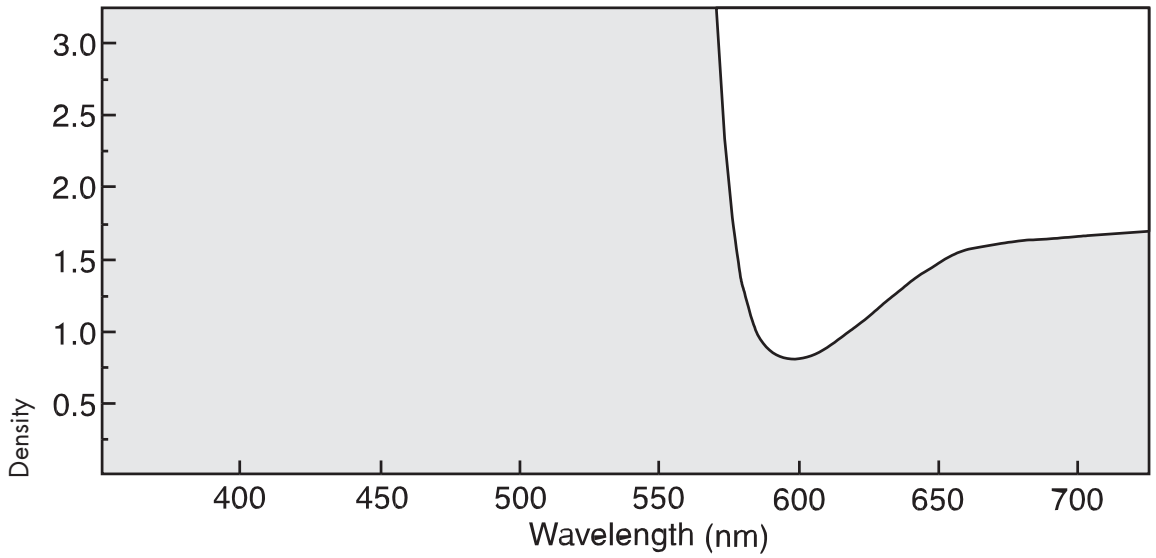
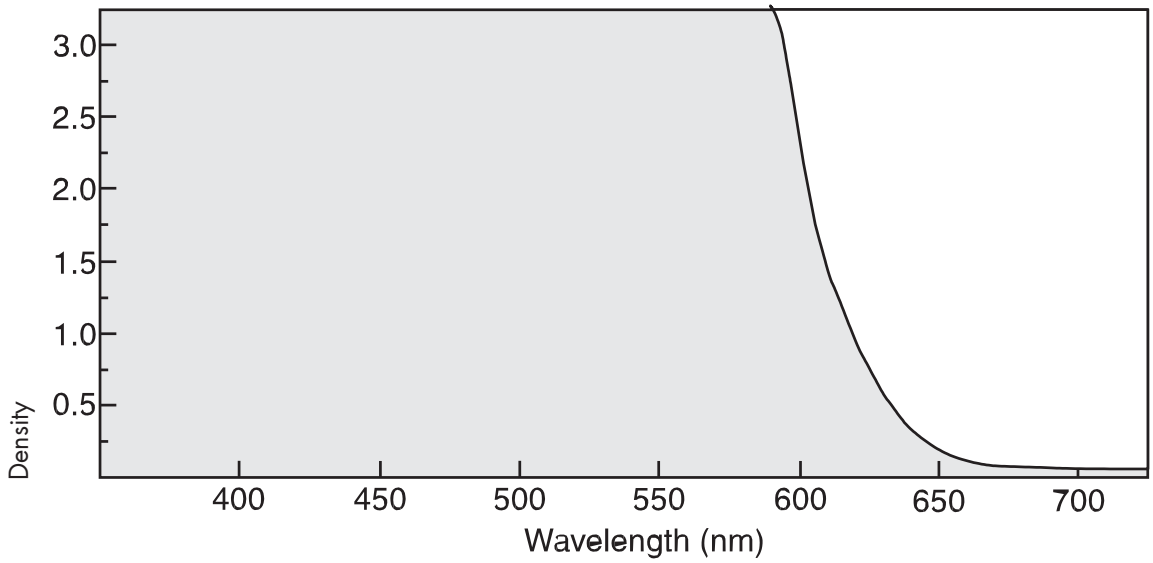


ABSORPTION CURVES FOR ILFORD SAFELIGHT FILTERS

ILFORD 915



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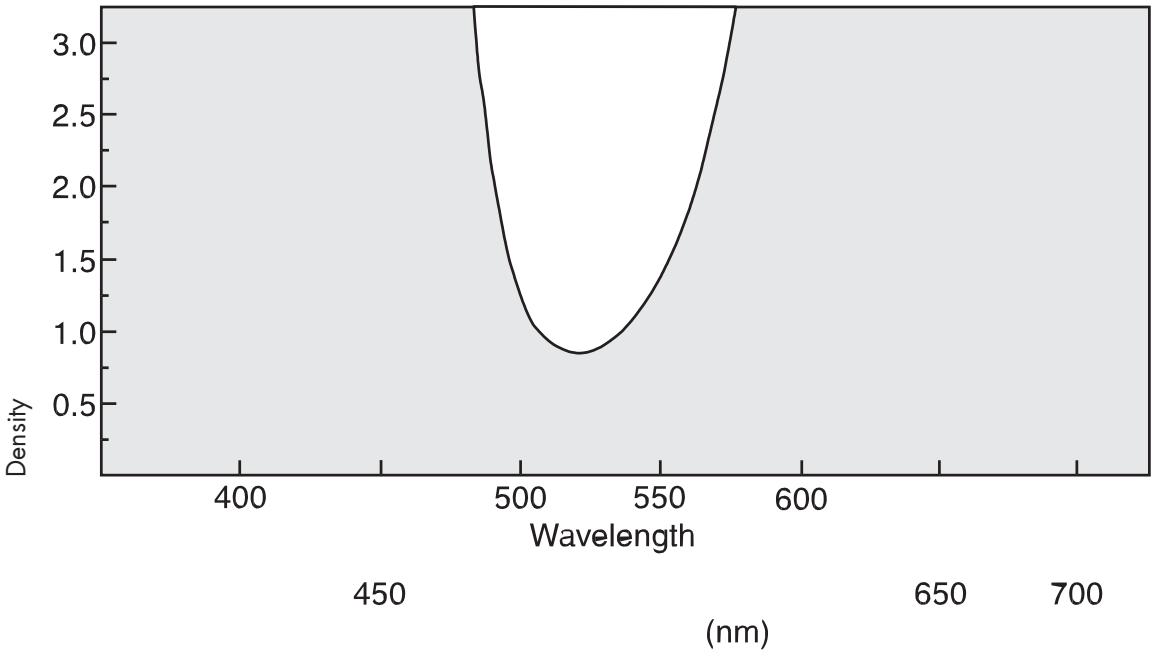

A wide range of fact sheets is available which describe and give guidance on using ILFORD products. Some products in this fact sheet might not be available in your country.

HARMAN technology Limited, Ilford Way,
Mobberley, Knutsford, Cheshire WA16 7JL, England
www.ilfordphoto.com