FAQ
L4 PLATES

CONTENTS

1. PRODUCT APPLICATIONS

1.1 What products are suitable for X-ray exposure?

ILFORD L4 glass plates are extensively used for direct X-ray exposure. They are routinely coated to a dry emulsion thickness of 10, 25, 50 and 100 microns. This emulsion thickness range is made available to cater for different wavelengths of X-ray exposure.
In addition to the above the ILFORD K emulsions are also made available for this application coated onto glass by special arrangement. Please contact ILFORD Photo for details.
Further details on this application are available in the Technical Information.

1.2 What other products are suitable for Particle Physics?

In addition to the L4 products described in Section 1.1 the following products can also be coated at a range of emulsion thickness for particle physics applications. Please note that these products are only made available to special order. Please contact ILFORD Photo for details.

Emulsion	Crystal diameter (μm)	Comments
K0	0.20	Used in particle physics to record protons of energies up to 5MeV. Records thorium α-particles as nearly continuous tracks. Produced only by special order.
K2	0.20	Records protons to about 80 MeV. Slow electrons produce tracks of a few grains only.
K5	0.20	Exposure times tend to be shorter than with K2, especially where activity levels are low.
G5	0.27	Sensitive to minimum ionising particles.

1.3 What product is suitable for light exposure?

ILFORD L4 glass plates can be used for creative and technical applications. In these applications the image is recorded using a conventional light exposure. We recommend an emulsion thickness of 25 microns for this application.
Further details on this application are available in the Technical Information.

1.4 What sort of image is produced by light exposure?

ILFORD L4 glass plates produce a high contrast image with extremely low grain. The high silver coating weight produces extremely deep blacks. In addition the low background fog produces very clear areas of minimum exposure.

1.5 Do ILFORD Photo produce any other types of glass plate?

Yes we do, ILFORD Photo also produce ILFORD Q plates.

2. PRODUCT AVAILABILITY

2.1 How is the product supplied?

ILFORD L4 plates are supplied in packs of 12 plates.

2.2 What is the lead time?

L4 Plates are held in stock as large master plates at the production facility at Mobberley, UK and are cut to order. As a result small quantities are effectively available from stock.

2.3 What plate sizes are available?

ILFORD L4 plates are available in a wide range of rectangular and square sizes, individually cut to the customer's specification.
The minimum size of a plate is 2.5 by 2.5cm (1 inch square). The maximum size is 25 by 68cm (10 by 27 inches).
The glass thickness is nominally 1.3mm. Coating onto glass of a different thickness is possible. Please contact ILFORD Photo for details.

2.3 Where can I purchase L4 Plates?

With the exception of USA ILFORD Photo distributors of scientific products can be found in the "Contact Us" section of our website.
NB: In the USA, ILFORD Photo scientific products are distributed by Polysciences Inc. Further information can be found at **www.polysciences.com.**

3 PRODUCT USE

3.1 What safelight should I use?

For general darkroom illumination, the ILFORD 902 (light brown) safelight filter in a darkroom lamp fitted with a 15-watt bulb is recommended. For direct illumination, the ILFORD 904 (dark brown) safelight filter is recommended. When maximum illumination is required, a sodium lamp with the correct safelight filters may be used.

3.2 What sort of light exposure would I need?

ILFORD L4 plates are sensitive to blue light. As a rough guide they are about 100 times less sensitive to an electronic flash exposure than ILFORD FP4 Plus.

4 PROCESSING

4.1 What developer should I use?

The method of developing ILFORD Nuclear emulsions and the choice of developer is largely determined by the thickness of the emulsion layer. This is because the time taken for the developer to diffuse through the layer should be an insignificant fraction of the total development time. If this were not the case development would be uneven through the layer.

This is discussed further in the relevant Technical Information sheet.

Always ensure the developer is fresh.

4.2 Should I use a stop bath between development and fixing?

In general this is a good idea. This may be made up with ILFORD ILFOSTOP diluted 1+19 with water or 0.2-2% acetic acid solution. This will reduce the incidence of surface staining of the emulsion layer after processing (dichroic fog).

4.3 What fixer should I use?

Use a non-hardening fixer, e.g. ILFORD HYPAM diluted 1+4. Hardening fixers are not recommended because of the difficulty of ensuring an efficient wash.

Fix the material for twice the time it takes the emulsion to clear.

4.4 How should I wash the plates after fixing?

Samples may be washed in tap water, but give a final rinse in distilled water. This will ensure that any materials dissolved in the tap water are not concentrated in the emulsion on drying. Failing to do this is a common cause for a lack of permanence in the final image.

5 CAUSES OF FOGGING OR HIGH BACKGROUND DENSITY

There are a number of possible causes for an increase in background density. The common ones are listed below.

5.1 Extraneous light

It is worthwhile checking that the darkroom area is indeed light tight. The best way to do this is to turn off all the lights in the darkroom and look for light leaking in after your eyes have adjusted to the darkness for around 30 minutes.

5.2 Safelight problems

Check that the safelight filters are of the correct type and the correct wattage of bulb is fitted. Also check that no unfiltered light can leak out of the casing and that the safelight filter is free of defects such as cracks or scratches.

ILFORD L4 plates should not be exposed to safelighting for any longer than necessary.

5.3 Changes in temperature during processing

Sudden temperature swings of around 10°C whilst wet can cause a defect known as reticulation. On a macroscopic level this causes a roughening of the emulsion surface similar to orange peel. On a microscopic scale there are large local changes to the fog level due to stresses and strains within the emulsion.

It is especially important to pay attention to this effect for the thicker emulsion layers (50 and 100 microns).

5.4 Contamination by chemical vapours.

Sensitised materials should not be stored near to certain chemical solutions, such as ammonia, sodium sulphide or formaldehyde; or near fumes or vapours coming from volatile substances; gases, such as sulphur dioxide or coal gas; or some industrial solvents and cleaning fluids. Materials should not be stored on new or newly painted wood.

Processing chemicals should be stored as far away as possible from the plates.

If you have any general comments on the contents of this document, or you can think of sections that should be added we would be pleased to hear from you

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