TECHNICAL INFORMATION

ILFORD Q PLATES

TECHNICAL INFORMATION FOR ALL APPLICATIONS

1 INTRODUCTION

ILFORD Q PLATES are specifically intended for the detection of the heavy ions found in mass spectrography. A conventional emulsion cannot be used to detect heavy particles, as they would be absorbed by the gelatin of the supercoat.

The supercoat is a thin layer of gelatin coated over the photographic emulsion. It serves to protect the emulsion from stress caused by handling. However, this gelatin can stop heavy ions and short wavelength radiation. For this reason Q PLATES have no supercoat.

The emulsion is coated onto the glass by a special technique, which concentrates the silver halide crystals at the surface of the emulsion, for greatest sensitivity.

The construction of Q PLATES makes them useful in other applications where heavy atomic particles are to be detected or radiation is to be recorded with a wavelength of less than 200nm. The extreme fragility of the emulsion surface renders Q PLATES unsuitable for conventional photography.

2 PRODUCT AVAILABILITY

Q PLATES are available in sizes suitable to fit the majority of equipment in use. Non-standard sizes are available to special order. Plates of the following sizes are packed in boxes of 10.

2x10 inches
2x12 inches
2x15 inches
5x38cm
All other sizes are in boxes of 12.
Q PLATES are coated on standard (0.8-1.0mm) glass and on thin (0.6-0.8mm) glass for those applications where the plate must be curved in the equipment.

3 PRODUCT USE

3.1 HANDLING

Any form of rubbing easily damages the emulsion surface of these plates. The plates must therefore be handled with great care at all stages before, during and after processing. Always handle plates by the edges. Despite very careful handling, contact with packing materials will stress the edges of the plate. For this reason, position the image at least 5mm from the edge of the plate.

3.2. SAFELIGHTING

An ILFORD 904 (dark brown) safelight filter should be used, in an ILFORD darkroom lamp fitted with the appropriate bulb.

4. PROCESSING

4.1. DEVELOPMENT

ILFORD PHENISOL is the recommended developer for Q PLATES. This is a non-caustic developer supplied as a liquid concentrate. It should be diluted 1+4 with water for use. The recommended development time at 20°C is 4 minutes, with continuous agitation.

If this developer is not available ILFORD ID-72 developer is recommended, see Section 5.1.

Alternatively, the caustic developer formula ID-13 may be used - see Section 5.2.

Other developers may be used but no guarantee can be given that the results will always be acceptable.

4.2. FIXING AND WASHING

After development, fix Q PLATES in ILFORD HYPAM diluted 1+4 with water.

Q PLATES should be fixed in fresh fixer for twice the time it takes for the plates to clear, then washed in a good supply of running water for about 8 minutes. A final rinse to which a few drops of ILFORD ILFOTOL wetting agent has been added will aid rapid and uniform drying.

5. DEVELOPER FORMULATIONS

5.1. ID-72

Dissolve the chemicals in turn, in the given order, in about three-quarters of the total volume of hot water (about 52°C). When they have all been dissolved, add cold water to make up to the total volume. Use the developer undiluted.

Sodium sulphite, anhydrous 72g
Sodium carbonate, anhydrous 48g
Hydroquinone 8.8g
Phenidone 0.22g
Potassium bromide 4g
Restraining solution* 10ml
Water to 1 litre

* To prepare the restraining solution, dissolve 10g of benzotriazole in 1 litre of 1% sodium carbonate solution.

5.2. ID-13
Stock solution A

Hydroquinone 25g
Potassium metabisulphite 25g
Potassium bromide 25g
Water to 1 litre

Stock solution B

Potassium hydroxide 50g
Water to 1 litre

Mix equal parts of A and B immediately before use.
Develop for 2½-3 minutes at 20°C, with continuous agitation.

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