

FACT SHEET – PROVISIONAL

# SP857P

## DIGITAL ENLARGER PAPER

### PREMIUM QUALITY BLACK AND WHITE PANCHROMATIC PHOTOGRAPHIC PAPER ON A RESIN COATED BASE FOR USE WITH LASER ENLARGERS

ILFORD SP857P is a premium quality black and white panchromatic photographic paper that has a neutral image colour. It is coated onto a bright white, medium weight (190g/m<sup>2</sup>), water resistant, resin coated base.

SP857P has been designed using traditional silver halide technology with its sensitivity optimised for compatibility with tricolour laser enlargers such as the Lambda models supplied by Durst and the Lightjet models supplied by Cymbolic Sciences.

SP857P has excellent contrast, sharpness and gloss that will give superb continuous tone black and white images or text from digital files prepared from either black and white or colour film negatives or positives, prints and digital originals. The results are equal to those seen when using conventional black and white printing materials and exposing equipment.

SP857P is available in two surface finishes: 1M glossy and 44M pearl in mural roll formats up to 127cm (50 in) wide and 50m (163ft) in length.

#### **EXPOSURE**

SP857P is specifically design to be exposed by tricolour laser enlargers. SP857P has not been designed for use in LED, LCD, CRT or conventional printing systems, however it may give results in some systems that might be suitable for some applications.

#### **Safelight recommendations**

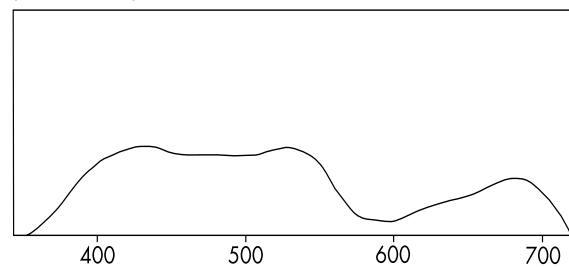
SP857P has panchromatic sensitivity therefore we recommend that all handling of unpacked paper is done in total darkness.

However if an orientation safelight is required then a GB2 safelight screen can be used. A GB2 safelight screen is a sandwich of two ILFORD 908 dark green filters plus a 0.6 neutral density filter and, used as recommended, only allows a user to avoid becoming disoriented. SP857P will be safe for approximately 1 minute in direct light using a GB2 with a 15 watt bulb at a distance of 1.2m (4ft). If the distance between the paper and the safelight is doubled then this time will be quadrupled. The safe time is also longer when the light from the safelight does not fall directly on the paper.

As an alternative a single 908 safelight filter could be used, provided it does not directly light the paper and is not closer than 2.5m (8ft).

#### **SPECTRAL SENSITIVITY**

##### **Wedge Spectrogram to tungsten light (2850K)**



Wavelength nm

#### **ISO Contrast range**

SP857P is a fixed contrast paper equivalent to grade four of a conventional enlarging paper.

It has an ISO range R of 60.

#### **ISO Speed**

The ISO speed of SP857P is very similar to ILFORD ILFOCHROME CLASSIC P3/P3X and ILFOCOLOUR IP2000 RA4 products exposed using the same device.

**Exposing light sources**

SP857P is designed for use with the red, green and blue lasers used in digital enlargers. However it can also be used with conventional tungsten or tungsten halogen light sources.

**CALIBRATION FOR USE  
Durst Lambda 130, 131 and 76 Plus Calibration**

To calibrate any of the Lambda models follow the manufacturer’s standard calibration sequence.

When using the paper for the first time, create and save a new product file for ILFORD SP857P black and white paper in the drop down list of products available. This can be done by copying an existing file in the Lambda’s software.

Use the “No Contrast” and “No Sharpness” settings.

As a starting point to calibrate for the paper use the figures in the following table.

	Dmax	Basic Calibration (starting values)	
R	208	C	0.00
G	214	Y	126.61
B	215	M	75.51
		D	47.19

Expose and process a calibration strip. Put the resulting step wedge through the Lambda’s densitometer and allow it to calculate any corrections. Apply the corrections and repeat the test until no more corrections are called for.

A visual check of progress can be done by comparing the SP857P black and white calibration strip with a standard colour calibration strip. There will be some differences but overall the monochrome calibration strip should be a good tone representation of the colour calibration strip.

SP857P cannot be calibrated or exposed by the Lambda Pi50 due to the lower green laser output of this model. In order to use SP857P, the Lambda Pi50 must be upgraded to either the Lambda 131 or 130 configuration. Please contact your local Durst representative for details.

**Gretag (Cymbolic Science) Lightjet 430 and Lightjet 5000 Calibration**

Before attempting to calibrate either of the Gretag (CSI) Lightjets the appropriate product profile information for SP857P must be added into the enlargers’ look up tables. The product profiles for the Lightjet 5000 and Lightjet 430 are slightly different. Once the appropriate product profiles have been installed add the product name to the list of those available and associate it with the product profiles. The product profile information provides the user with a good starting point. To proceed follow the normal calibration sequence.

For the lightjet 5000 series running fusion v 2 software the following values may provide a good starting point. Set the resolution to 12 pixels/mm

Red = -13, Blue = 798, Green = 503

A good calibration balance is made when the CMY patches on the DMax calibration strip are similar in density, 0.8–1.0.

For either Lightjet the product profiles folder is called ‘ILFORD SP857P - rev B’. This folder should be added to the files in X:\picto\blend\material20\ where X: can be either drive C: or D:

The SP857P product profile information can be made available to users through your local ILFORD representative.

**IMAGE QUALITY  
Density and Contrast Control**

The density and contrast of the printed image is controlled by manipulation of the original digital file. This can be done by using the software of the exposing device but it is mostly done off-line before the image is sent to the enlarger.

Black and White prints can be made directly from colour digital files but in most cases it is far more efficient to convert these to either de-saturated R.G.B. files or grey scale files before printing. The smaller files made by discarding the colour information are much quicker to RIP and write. There is another advantage to doing this as some colour originals printed straight to Black & White do not make suitable or interesting images without some adjustment to their contrast or density.

The quality of the final image is very dependent on the quality of the original negative or positive or print and the quality or method of scanning used to make the digital image file. The resolution at which the original negative or print is scanned must be appropriate for the size of the final output image. Files made from low resolution scans or files that are too small for the final print enlargement output may lose shadow and highlight details or show pixels and posterisation or some other form of image deterioration.

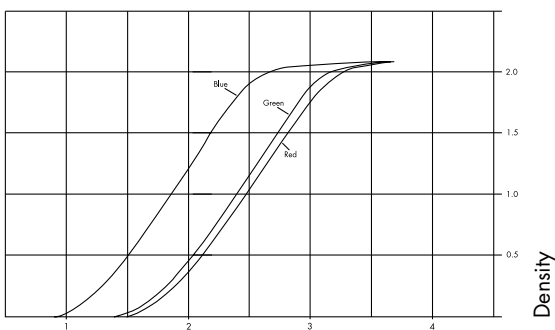
### Latent Image Stability

No significant change in picture quality will be seen when SP857P is left for a period of 24 hours after exposure and before processing.

### Dimensional Stability

SP857P has a good dimensional stability. When processed as recommended sheet/roll size will not vary by more than 0.1% between before and after processing.

### Characteristic Curve



Relative log exposure

SP857P glossy or pearl paper exposed for  $10^{-4}$  seconds to broad band colour filters illuminated by a xenon flash tube.

Developer: MULTIGRADE diluted 1+9.

Development: 1 minute at 20°C/68°F.

### MACHINE PROCESSING

SP857P can be processed in all wide format, roller transport and leader belt process machines used for conventional black and white resin coated papers. It can also be used in wide format ILFOCHROME P3/P3X and P4 process systems provided that the processor is fitted with a bleach bath bridge. It is not suitable for activation or RA4 processing.

### Setting up a processor

To set up a processor for SP857P use ILFORD 2000RT developer/replenisher and ILFORD 2000RT fixer/replenisher.

ILFORD 2000RT chemicals are recommended for processing SP857P, these are diluted 1+4 to make tank or replenisher solutions, but the paper is also compatible with all other conventional black and white machine processing paper chemicals.

**Note** Photographic chemicals are not hazardous when used correctly. It is recommended that gloves, eye protection and an apron or overall are worn when handling and mixing all chemicals. Always follow the specific health and safety recommendations on the chemical packaging. Photochemical material safety data sheets containing full details for the safe handling, disposal and transportation of ILFORD chemicals are available from ILFORD agents or directly from the ILFORD web site at [www.ilford.com](http://www.ilford.com).

To ensure that SP857P will calibrate with your digital enlarger and before the calibration procedure is started, it is very important to make sure that the developer in the processor is in good condition and able to get a good maximum density from the paper. To do this use the following simple method:-

- take a sample of SP857P and expose it to white light e.g. the normal room lighting or daylight. (The length of exposure is not critical but do not over-expose, 2 to 3 seconds is sufficient).
- process the exposed sheet.
- measure the black achieved using a calibrated reflection densitometer, (if it is available use the visual density measurement setting).
- The measurement should be at least 2.15.
- If it is, proceed to calibrate the paper in your enlarger.
- If it is not, carry out one or more of the following actions and re-test the paper until the required maximum density is achieved :-
  - adjust the development time.
  - adjust the developer temperature.
  - completely change the developer for fresh solution.
- Checking the maximum density from the processor should be done regularly. If it usually results in making adjustments to the settings or making fresh developer then check the developer replenishment rate and increase it.
- The measured minimum density of the processed paper should not exceed an absolute density of 0.03 when measured by a calibrated reflection densitometer.

**Suggested development times and temperatures**

The preferred temperature range is 20–30°C/68–86°F.

Temperature (°C/°F)	Development time (sec) including transfer time to next tank
20/68	46
25/77	32
30/86	22
35/95	15
40/104	12

These suggestions are only a guide and the processing time and temperature should be checked in the processor. The times are for either non-replenished systems, with a maximum solution life of seven days or for replenished systems with a solution life of up to three months. Replenishment rates will vary between different designs of processor and the use they receive. A guide for developer replenishment rate is 150–250ml/m<sup>2</sup> (14–23ml/ft<sup>2</sup>) of paper processed.

**Suggested fixing times**

The same times and temperatures as for development can be used for fixing. The actual fixing time, however, is shorter, and 20 seconds is ample above 20°C/68°F. These recommendations are suitable for both replenished and non-replenished systems. In replenished systems, the replenishment rates will vary with different designs of processor, but a guide for fixer replenishment is 300–450ml/m<sup>2</sup> (28–41ml/ft<sup>2</sup>) of paper processed. For non-replenished systems, the maximum paper throughput is 4m<sup>2</sup> per litre (43ft<sup>2</sup>/US quart) of working strength solution. The maximum silver concentration in the fixer bath can be 4–6g/l.

**Note** If fixing is not complete, then adequate washing is impossible.

**Washing times**

The efficiency of the wash and water consumption depends on the processor design and water temperature. As a general rule, wash for at least 15 seconds at temperatures above 5°C/9°F.

**Hot air drying**

Use temperatures up to 85°C/153°F.

**DISH/TRAY AND TROUGH PROCESSING**

SP857P can be processed in dishes (trays) or troughs in the same way as other resin coated papers but processing must be carried out in total darkness. The recommended ILFORD chemicals are ILFORD MULTIGRADE developer, ILFORD ILFOSTOP PRO stop bath and ILFORD RAPID FIXER. Processing details are supplied with the chemicals.

**TONING AND CHEMICAL REDUCTION**

SP857P paper responds in a similar way to other resin coated papers to the usual techniques of toning and chemical reduction.

**RETOUCHING**

SP857P prints can be spotted and air brushed using dye (for a glossy finish) or water colour (for a matt finish), in the same way as most resin coated papers.

When knifing resin coated prints, damp the area to be knifed, then use a sharp, pointed blade to scrape away the emulsion. Alternatively, bleach out specks completely using local chemical reduction. After knifing or local reduction, rewash and dry the print, then spot the resulting white area in the usual way.

**MOUNTING**

SP857P prints can be mounted in one of the following ways. Where prints are to be mounted for long periods (in excess of 1–2 years), the dry mounting method is recommended.

**Dry mounting**

SP857P prints can be dry mounted in the usual way. The use of a foil overlay is recommended for glossy surfaces and the use of silicone release paper for other surfaces.

Although the manufacturers' recommendations should be followed, most tissues will give good results in a dry mounting press at a temperature of 80–90°C (144–165°F) with prints under pressure for about 30–40 seconds.

### **Double-sided adhesive sheets/cold mounting films**

These provide a very effective and convenient means of mounting SP857P paper onto porous or non-porous surfaces, without the need for special machinery. Some adhesive sheets allow the print to be repositioned after fixing. Several makes are available in sheet or roll form.

### **Spray adhesives**

Spray adhesives are suitable for mounting SP857P.

**Note** Always read the safety advice given by the manufacturers before using spray adhesives.

### **Contact adhesives**

These adhesives are available in liquid form for brushing or spraying and are suitable for mounting SP857P prints onto porous or non-porous mounts. Solvents must be allowed to evaporate completely from both print and mount before the two are brought into contact.

### **Wet mounting**

SP857P paper can be mounted onto porous surfaces (eg hardboard) using wet adhesives such as those designed for wall coverings. When mounting large prints, this method is an advantage, as there is time to position the print correctly and remove any air bubbles that might have become trapped between the print and the mount, without damaging the print. Wet mounting resin coated prints on non-porous materials (eg metal) is not recommended.

## **STORAGE**

### **Unprocessed paper**

Store unused SP857P paper in a cool, dry place in its original packaging. Avoid conditions of high temperature and/or high humidity. SP857P will keep in excellent condition for up to two years when stored as recommended.

### **Prints**

SP857P prints which have been processed as recommended in this fact sheet 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.

### **Display**

It is recommended that prints made for display are toned to protect them from the oxidising gases that are found in many environments. However, not all toners protect the image. Toners with a protective effect include selenium, sulphide and polysulphide toners. Other protection methods can be used including silver image stabilisers and laminating. Ideally, prints should be toned before 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.