

The Deville Archival Washer and 2 - Step Washing

Long term conservation problems of photographic emulsions are principally concerned with three points:

- sufficient fixation of the emulsion;
- adequate elimination of fixer;
- to prevent all contact with sulphur contained in atmospheric pollution.

Most misadventures are caused by deficient treatment and/or protection of prints, as well as lack of reliable information about photographic conservation.

In the last few years, considerable progress has been made to apply elementary conservation treatments to photographic emulsions.

Concerning fixing, there are two main techniques; treatment in two subsequent fixing baths and ultra-rapid treatment in a single concentrated fixing bath.

Contact with sulphur from the atmospheric pollution can be avoided by using acid-free conservation materials. Today it seems relatively easy to find mat board and conservation boxes which are guaranteed safe for long term conservation storage (like the Archiva system from Ilford), especially in the field of creative photography.

The elimination of residual fixing agents has been a major problem for generations of photographers, for the good reason that, during treatment, or directly after, no visual signs indicate the presence of harmful residues in the emulsions.

Different washing methods have been adapted to the baryta emulsion with or without the use of wash-aids and a series of more or less efficient washers have been used. Multiple slot archival washers are of special interest, for the apparent ease by which the residual products are removed from the emulsions.

All washing systems work on tap water and generally use important quantities of clean running water.

The following table gives the values of the allowed thiosulfate content in modern b/w emulsions. In this respect there is a considerable difference

between paper and film emulsions. This can be explained by the fact that polyester or acetate supports absorb little or no treatment liquids, while the paper support, being constituted of cellulose fibres may contain relative high quantities of residual salts after fixing.

	Commercial Use	Long Term Conservation 100 years	Archival
Baryta Support			
Double Weight	0.4 g/m ²	0.2	0.1
Single Weight	0.2	0.1	0.05
Film Emulsion			
Radiography	0.1	0.05	0.025
Microfilm	0.06	0.03	0.015

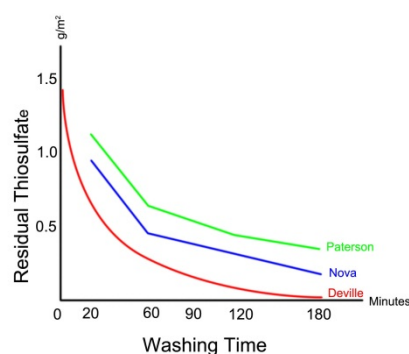
A comparative study of seven archival washers from the American commercial market underlines the essential qualities of a functional washer:

- compact dimensions
- the prints remain separated during the washing process;
- pure water must reach the entire surface of each print;
- possibility to soak in still water;
- easy cleaning without unattainable dirt accumulation.

The quality of washing baryta emulsions is experimentally determined by a test method, described in international norms, which is capable to measure the residual thiosulfate content.

The following graph is a visual representation of the above mentioned study. For the 3 washers, the residual thiosulfate, expressed in g/m², is given in function of the washing time in minutes.

The washing procedure is practically identical for all the tested washers and permits to compare the washing efficiency of the different systems. In this respect, the Deville archival washer comes out on top:



The Deville archival washer type LC03141 takes prints up to 30/40 cm and the 5161 takes prints up to 50/60 cm. The archival washer contains two independent washing compartments. Each of these receives a basket containing the prints, which cannot stick, and are retained by nylon cords. The water connection is situated at the bottom of the apparatus and the fixing salts are removed by the water circulation under the baskets.



Deville 3141

Characteristics	Washer 3141	Washer 5161
Number of Prints	2 x 6 (30/40 cm)	2 x 5 (50/61 cm)
Dimensions	51/41/31 cm	74/61/31 cm
Volume	50 L	100 L
Weight	11 kg	30 kg

Our study has been conducted with the following materials:

- Agfa Brovira paper, 30/40 cm;
 - Agfa Aegifix in normal dilution for 2 bath fixing and dilution 1+5 for the rapid fixing method;
- Samples of 10 cm² were taken in the centre of the treated and air dried sheets. These were tested by the spectrophotometric method described in the International Norm of ISO 417.