

Watermarks

A watermark is a special technique used to indicate a product or a paper manufacturer. They came into use only with the spread of paper production to Europe. The first papermakers marked their papers this way in Italy as early as the end of the 13th century. The technique consists in attaching (sewing or gluing) a wire shaped into the appropriate sign to the screen of the papermaking frame. Over the wire, the paper pulp forms a thinner layer; the chosen design is then visible as a more translucent area on the finished sheet of paper.

The conclusions drawn from the survey of watermarks are an indispensable means of historical criticism. Within the survey, the watermarks are classified in terms of provenance and time, thus providing important information about the entire document in which the given paper was used.



Wire sewn to the sieve of a papermaking frame.

Visualisation Methods

The methods of visualisation and documentation of watermarks are based mainly on the passage of a particular type of radiation through paper, which is noticeably thinner at the watermark spot, and thus a larger amount of the given radiation will pass through. A method which does not use different measurements of radiation transmission at the watermark site is the method of redrawing or tracing the surface structure – frottage.

Frottage

The method is based on the use of different paper thicknesses. The paper is thinner at the site of the watermark, so it is possible to use the method of tracing the paper structure with a soft graphite pencil or red pencil on thin paper. This method can only be used with stronger and thicker handmade papers where the difference in thickness at the point of watermark is noticeable. This method may be partially affected by printing.



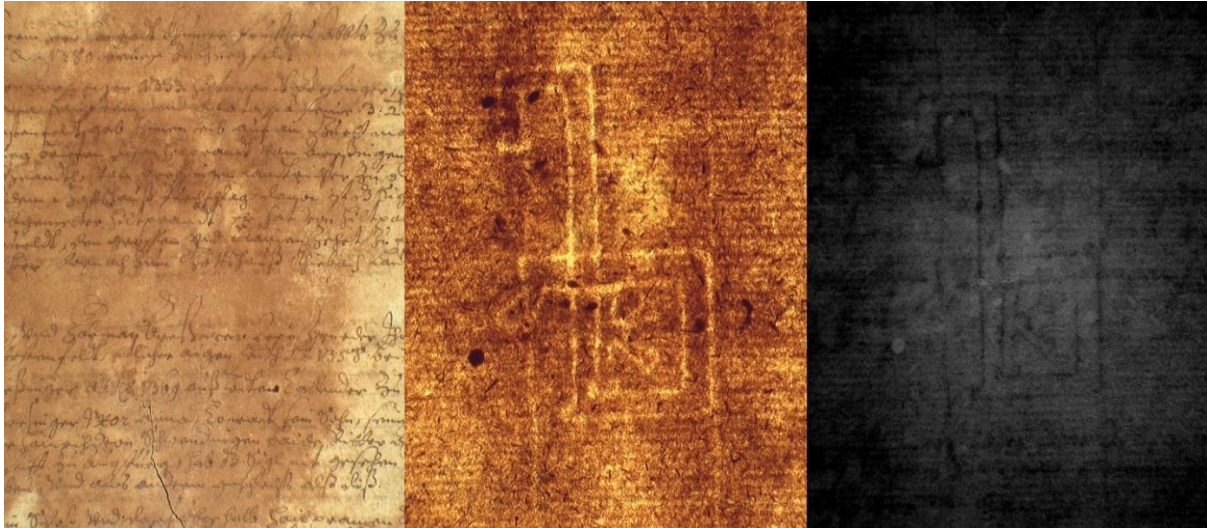
Watermark in transmitted light and its drawing by the method of frottage.

Use of Visible and Ultraviolet Radiation

The most common method of watermark documentation is the use of **visible light transmission**. The disadvantage of this method is that the print, ink or colour layer at the watermark spot does not transmit light and the emblem is not visible completely. This method uses a light table, panel or light sheet, where the light-guiding fibers are laminated in the film. With the VSC 8000 it is possible to use transmitted light to display watermark on documents or fragments of sheets. If it is necessary to display the watermark in a text block and it is not possible to display the pages separately, it is necessary to use another method. The use of incident VIS light using a long wave pass filter RG925, when we observe only the surface layer of the paper, also proved to be a suitable setting for displaying the watermark. Where the paper is thinned, the light is not reflected as much and the drawing of the watermark appears as a black trace; in the negative display (to enhance legibility) as white.

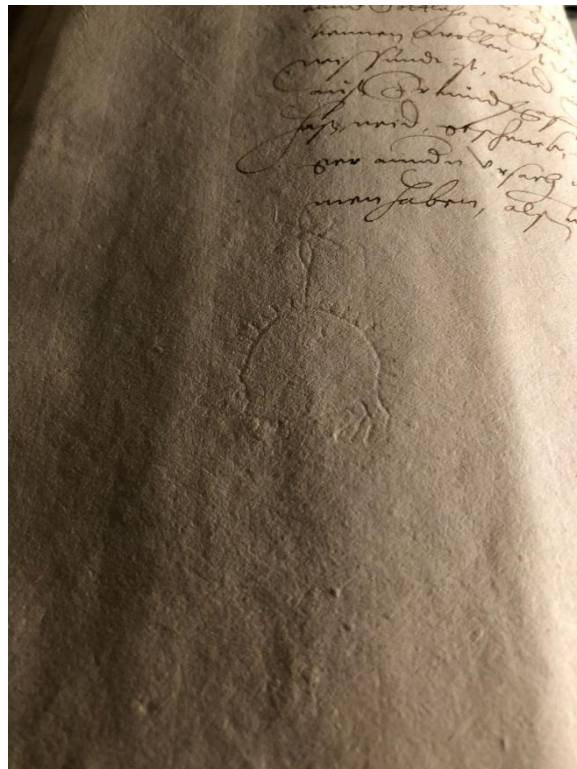


Fragment of a sheet with a watermark. Observations in incident VIS (left), in lower diffused light (centre) and in incident VIS with RG925 short wave pass filter (right) – negative display.



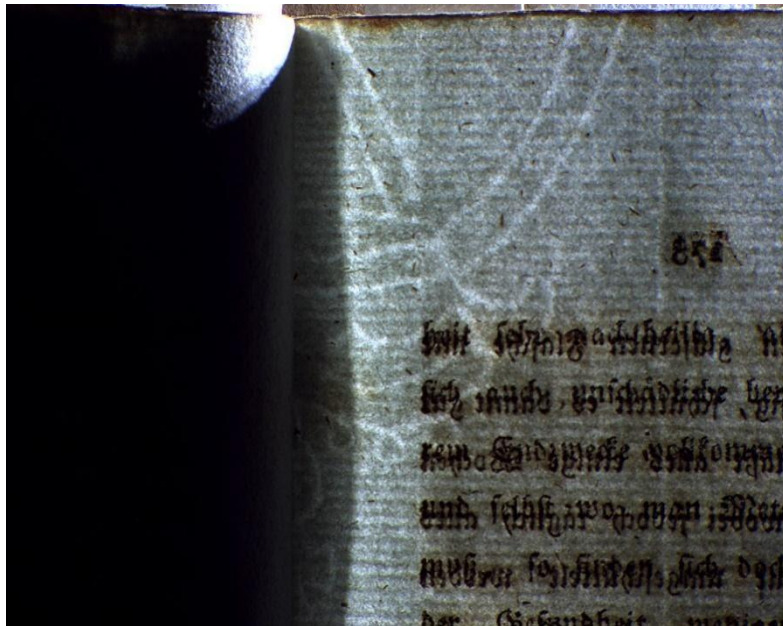
Document with a watermark in place of text. Observations in incident VIS (left), in lower diffused light (centre) and in incident VIS with RG925 short wave pass filter (right).

Another option for visualizing watermark can be to use a **side light** to highlight the height differences of the paper surface. The watermark thus made visible can be photographed and further processed with electronic data. In this method, a noticeable difference in paper thickness is important and the result may also be partly influenced by the presence of printing or handwriting. This technique can be carried out on the VSC®8000 video comparator.



Making the watermark on handmade paper visible in a text block using side lighting.

The side light in the VSC 8000 can also be used to simulate transmitted light when the watermark cannot be imaged in any other way. The side light is set to a height just below the level of the paper sheet being viewed, separated by a thin pad from the rest of the block – this was to illuminate the paper with the side light.



Making the watermark on handmade paper visible in a text block using side lighting.