

Thermal-Transfer Printout Durability of Sartorius Laboratory Printer YDP30 and YDP30-NET



Technical Note

Scope

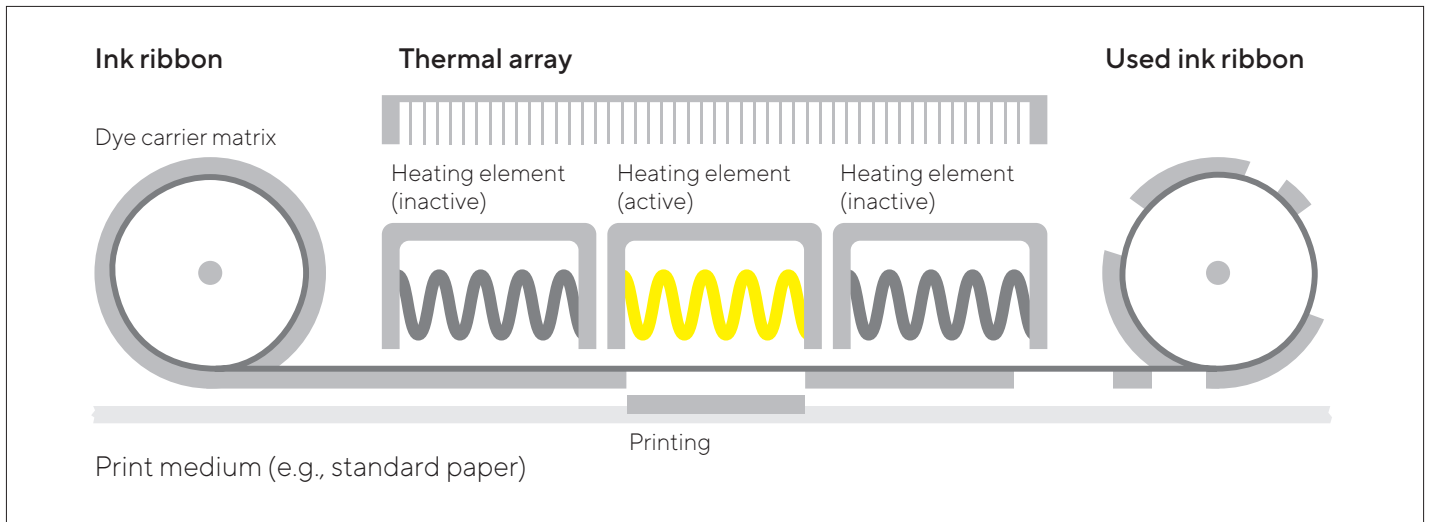
In Thermal Transfer printing, a thermal printhead applies heat to a ribbon, which melts ink onto the material to form the image. The ink is absorbed and so the image becomes part of the media.

This technique provides a very high image quality and durability up to 30 years.

Executive Summary

A durability of 30 years is recommended for long-term storage of printouts, when kept under standard storage conditions.

Thermal transfer printing is an accepted method for raw data logging by measurement devices. In this method, an ink ribbon runs through the printer synchronously with the print medium and the ink is transferred exactly onto the print medium by selectively heating the print head. Thermal transfer printing can be used on most conventional print media, such as standard paper or films, and produces a stable, non-fading printed image. The printout is archive-appropriate, just like printouts from dot matrix printers or office printers.



Drawing 1: Principle of thermal transfer printing. Dye is transferred from a dye carrier onto a print medium like e.g. standard paper by heat. In the print head heating elements in a thermal array are activated at positions where the ink is supposed to be transferred onto the print medium. The used ink ribbon is rolled up on a winding spool thereby transferring fresh ink ribbon to the print head.

Result

The test results performed by PTS- Papiertechnische Stiftung, Pirnaer Straße 37, 01809 Heidenau, indicates that the image stability of the tested paper samples exceed 30 years*, if the printout is archived under the mentioned conditions.

1. Purpose

We offer printer and paper solutions for long-term stability of the printout to meet the need for extended storage of printed materials. We tested two sets of paper and ink-ribbon variants by using the Sartorius printer YDP30 or YDP30-NET.

2. Preparation

Test samples were printed on standard paper with ribbon 69Y03285 and self-adhesive paper with ribbon 69Y03286 using printer YDP30 or YDP30-NET

3. Test setup and documentation

Test execution and documentation were done by PTS – Papiertechnische Stiftung, Pirnaer Straße 37, 01809 Heidenau. The documents are available as a download on www.sartorius.com

4. Summary

Printouts on standard paper and self-adhesive paper printed with the YDP30 or YDP30-NET are assured as readable for at least 30 years, if stored under the conditions defined in Appendix A.

* The statement cannot be guaranteed, as a long-term control of the parameters influencing the duration of the printout is not subject to the control of Sartorius. Changes made by the manufacturer of the paper to the formulation may also affect long-term performance. Sartorius can only influence if changes in the composition of the paper are also announced by the manufacturer of the paper.

Appendix A: Storage conditions for standard paper and self-adhesive paper printed with YDP30 or YDP30-NET

Both kinds of paper are referred to as “paper” in the following. The stability of the printout is not assured if printed with Sartorius Printer YDP30 or YDP30-NET.

1. Temperature and humidity

For long-term storage, store the paper in the dark, at an average ambient temperature of less than 25°C and a relative humidity of less than 65%.

2. Light and sun light

The image on the paper tends to fade when left exposed to light for prolonged periods of time. Therefore, place printed paper in storage as soon after printing as possible.

3. Solvent-type adhesives

The use of solvent-type adhesives may influence the stability of the paper and the printed image. If it is necessary to glue the paper to other objects, we recommend the use of self-adhesive paper (69Y03286).

4. Plasticizers

The presence of plasticizer may influence the stability of the paper and the printed image. We strongly recommend avoiding storage of printed paper in plastic covers or containers.

5. Others


Human body fluids, such as sweat, may influence the stability of the paper and the printed image. Therefore, take care when handling printed paper. In case of doubt, wear safety gloves during handling to protect the paper.

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