TAPPI Press

11th TAPPI European Place Conference 2007

May 14-16, 2007
Athens, Greece

Volume 2 of 3

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About this conference

The 11th TAPPI European PLACE Conference - (Polymers, Lamination, Adhesives, Coating & Extrusions) hosted at the Westin Athens Astir Palace Beach Resort in Athens, Greece- May 2007.

Attendees experienced the beauty and culture of Greece while enjoying the premier technical event for the European Flexible Packaging and Converting Industry. The conference program has a special emphasis on the latest trends, applications and technologies affecting the film extrusion, extrusion coating and end use applications including:

- New developments in polymers: raw material, the processing and converting
- What is new in machinery, extrusion and process controls
- Final products, environmental aspects and packaging
- Characterization of raw materials

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2007

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polytype
Converting

Coating of polyester film with thin wax layers

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Paper 7569 / Session 6.3

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TAPPI PLACE Athens 14 – 16 May 2007

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Summary

- Abstract
- Introduction to Thermal Transfer Technology
- Ribbon Structure of the company **ARMOR**
- Range of Application
- Development of the Wax Coating Method
- Quality Requirements to **Polytype**
- Acknowledgement

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Abstract

- Special applications require coating of thin layers of molten wax onto thin polyester films. The coating is approximately 1.5 micron thick on a substrate of 4.5 micron thickness. The standards for coating quality and uniformity are high. In the **Polytype** Pilot Plant we analysed several coating methods. Criteria related to quality as well as productivity, in particular the line speed, have been used for selecting the optimum coating method.

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Introduction to TT Technology

- History:
  - Thermal transfer is a 20 year old technology
  - Thermal transfer was created by a Japanese company, originally for printing the Kanji characters
  - At the same time automatic identification with Barcode technology started up
  - Both direct thermal and thermal transfer technologies were perfectly adapted for printing Barcodes and text
  - The new technology was introduced in Europe by **ARMOR**

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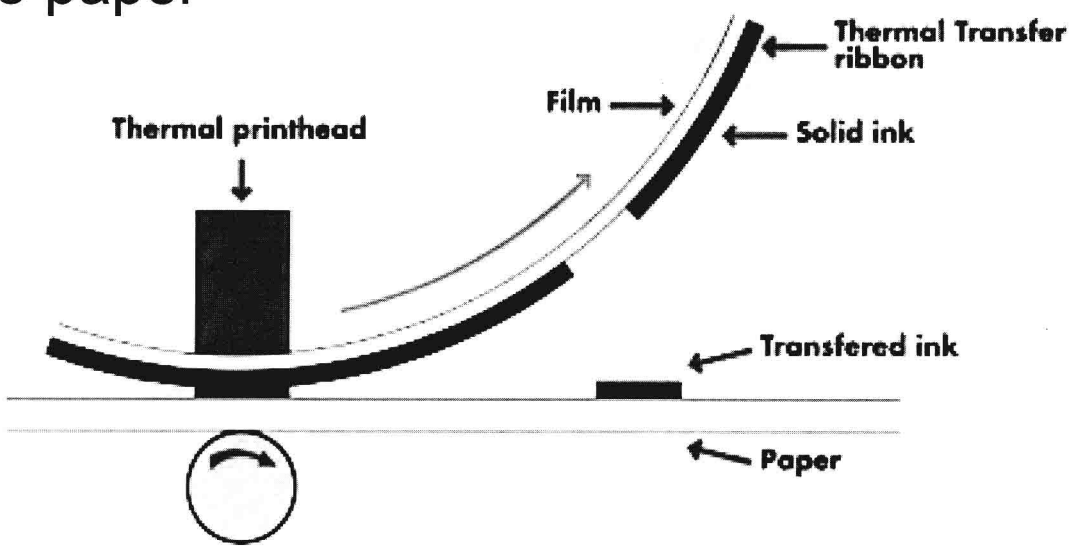
Introduction to TT Technology

- Working Principal:
  - To deposit by means of a heat source thermo fusible ink on a substrate
  - The ink, coated on a polyester film, is solid at ambient temperature. Under the heated print head the ink becomes fluid and is transferred from the film to the paper



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Introduction to TT Technology

- Benefits:
  - Suitable for industrial environments
  - Low cost on demand printing
  - Ability to print on paper, film and textiles
  - Capability to print at high resolution
  - High speed printing (> 1000mm/s)
  - Large choice of ribbons

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Ribbon Structure

- Structure:

  - The thermal transfer ribbon is a PET film upon which a thermofusible ink is deposited on one side and a protective layer called back coating on the other side.

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Ribbon Structure

- The Back coating:
  - Non-abrasive (very low coefficient of friction)
    - Protects the print head
  - Helps to reduce static charging
  - Outstanding silicone based product
    - Perfect to avoid build up of dirt
  - Very high heat resistance
    - Prevents the film from burning
  - Thermal conductor
    - Favors an excellent ink transfer

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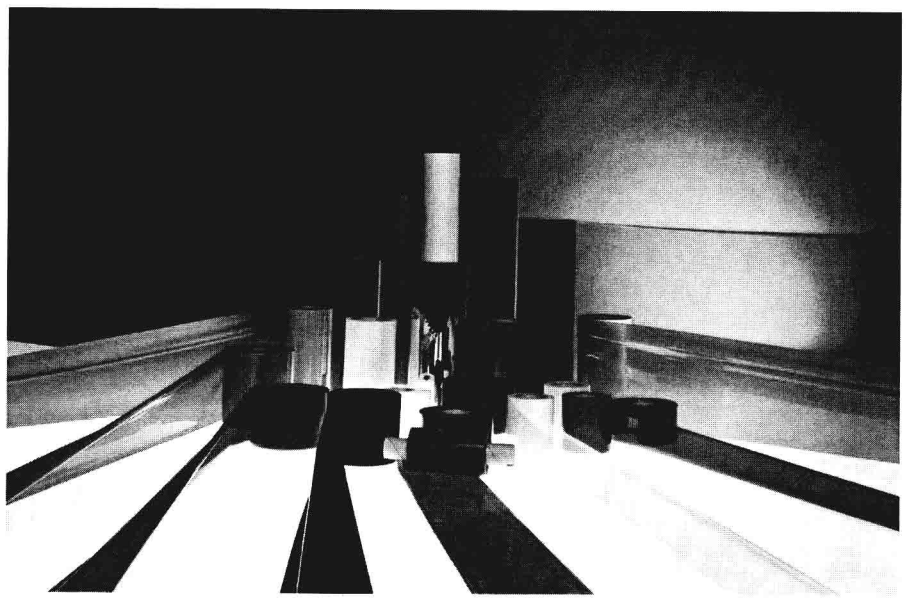
Ribbon Structure



- The Carrier:
  - Characteristics
    - PET film
    - Thickness 3.2 – 5.0 µm
  - Mechanical features
    - High resistance to tearing
  - Thermal behavior
    - Good thermal conductivity
    - Very good heat resistance (melting point of film = 250°C)