

# Trends In Paper And Board Industries With Respect To Improving Printability

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## ABSTRACT

The use of wetend and surface chemicals in the Paper & Board manufacturing process has a major impact on print performance. The BASF commitment in making our customers more successful, allows us to work jointly towards improving the quality of our customers product. In this publication we will describe the properties of Paper & Board which are important for the achievement of a good print result. The article will also cover some recent trends in the Paper & Board Industry to enhance print performance.

### PROPERTIES OF PAPER /BOARD AFFECTING PRINT RESULTS

- **Coating surface strength**

Dry (Pick as measured by IGT - Normal and Point)

Wet (Resistance to water interaction, particularly in coated products)

Base Strength (e.g. Plybond and Scott bond)

- **Surface ink absorption tendency -**

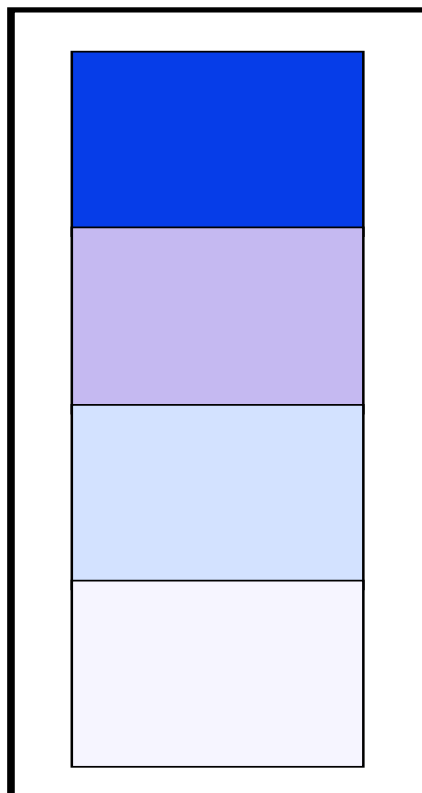
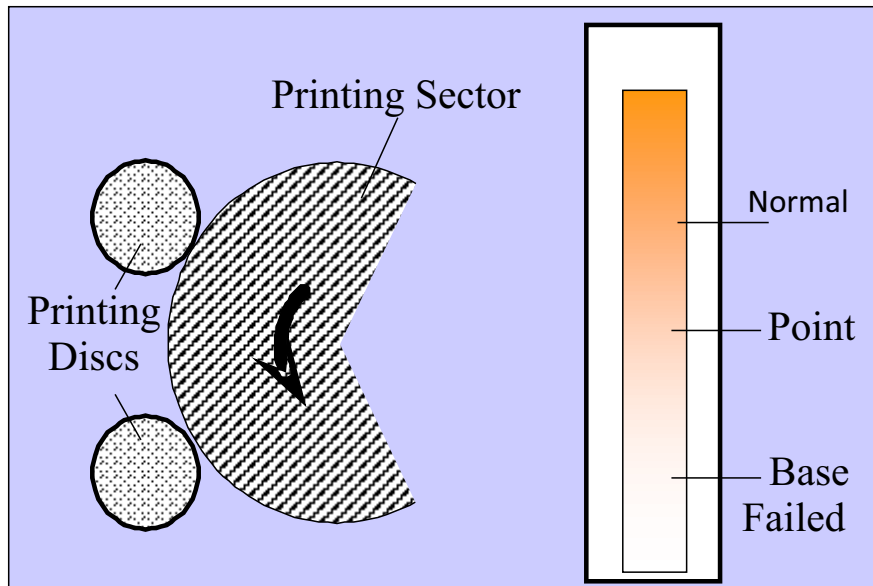
This property indicates the rate at

**Ink remaining after 15 seconds**

**Ink remaining after 30 seconds**

**Ink remaining after 45 seconds**

**Ink remaining after 60 seconds**



which ink is absorbed on to the paper & board surface during printing

- **Toner adhesion in copier paper**

Toner which is applied on to the paper during photocopy process should adhere to the paper for good photocopy results. The adhesion can be assessed via a tape method as shown below:

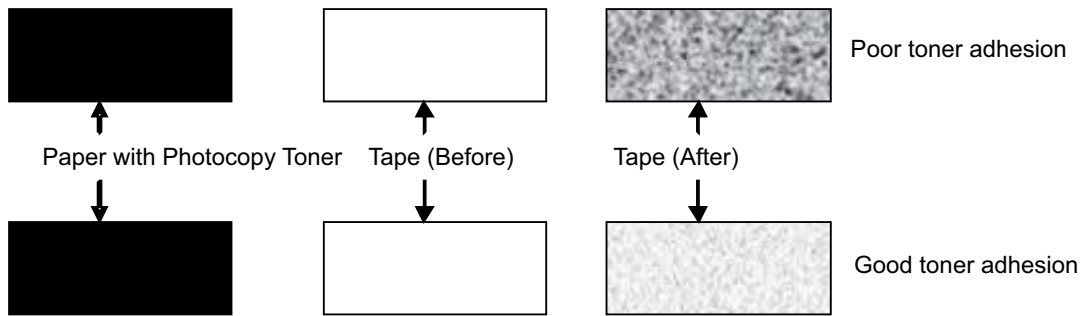
- **Dimensional stability of final product (esp. News Print)**

- **Surface Strength (wax Pick, IGT Wet & Dry) of final product**

- **Smoothness**

- **Optical Properties (Brightness, gloss, color reversion etc)**

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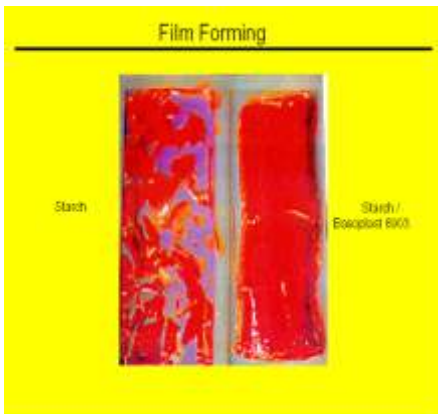


● **Blister Resistance (very important for web offset printing)**

● **Varnishability**

**TRENDS IN COATED PAPER/BOARD INDUSTRY:**

The Paper industry supplies to customers, the vast majority of whom undertake some form of printing and/or converting of the paper & board. The typical printing process most widely used is off-set, followed by gravure printing. Each printing process requires its own specific requirements to avoid potential customer complaints.



Outlined below are some recent trends in the paper & board manufacturing industry identified by BASF, to assist the Paper Maker in making a more robust product for his customers.

- Improving Base strength by the addition Fixing Agents & Dry Strength Resins (DSR) to reduce Linting, Dusting or Base rupture.
- Improving Paper & Board surface characteristics with the use of Polymeric Surface-Sizing Agents (PSA) to assist in the control of Mottle, Linting and Dusting, with potential Cost Saving through the reduction in internal sizing.
- Improving the formation of base Paper & Board with the use of multi-component retention program to reduce the tendency of Mottle, Linting and Dusting.
- Use of tailor-made binders to specifically achieve improved Dry Picking and/or Mottle resistance.

**TREND IN COPIER/WOOD FREE GRADES:**

- The use of Polymeric Surface-Sizing Agents (PSA) to provide higher Toner Adhesion and better performance in the Multipurpose printing, such as Inkjet printing. Also again provides potential Cost Saving as internal sizing may be

able to be reduced.

- The increased usage of filler (up to 30%) by cationization of the filler particles, without a lowering of overall paper strength.
- A higher use of alkaline sizing system to provide great longevity of stored paper and the improvement of optical properties.
- Improving formation with multi-component retention program to achieve higher levels of smoothness.

**NEW TRENDS FOR NEWS PRINT**

Increased quality demand has resulted from the increased use coloured prints by the newsprint industry. Combined with reduction in grammage, the industry faces a challenge to enhance the quality further in a globalised business such as newspaper production.

The new trend is to use polymer modified dimmer (PMD) combined with fixing agents to assist in the enhancement of the wet surface strength and dimensional stability.

**TACKLING A PRINT PROBLEM:**

- Diagnosis of particular printing problem.
- Detailed analytical analysis of the cause (if required).
- May lead to:
  - Optimization of the Wetend chemistry
  - The fine tuning of the coating recipes with backup support from the Laboratory results.
  - Or potentially both for Coated Paper &

