Tailor-made solutions for inkjet inks

Efka® 7701, Efka® 7731, Efka® 7732 dispersing agents

Wiebren Wind
BASF, Dispersions & Pigments Division, Formulation Additives
New family of premium dispersants for inkjet inks

- Efka® 7701
- Efka® 7731
- Efka® 7732

- Are High Molecular Weight Dispersing Agents
- Disperse pigments to ca. 100nm particle size or less
- Are easy-to-handle fluids at room temperature
- Are solvent-free and 100% active
- Give good viscosity decrease in mill-base and ink
- Give excellent viscosity-stability in mill-base and ink
- Give near Newtonian flow behavior

Increase range and scope of digital printing by giving solutions that were not there before.
Content

Introduction: inkjet needs high performance dispersants

New tailor-made solutions for inkjet inks

Performance and product selection

Summary
Development of new inks is a continuous process.

Important factors for digital inks are:

- Pigment dispersion stability
  - low viscosity
  - low pigmentation levels
- Newtonian flow behavior

High performance dispersants are essential and enable new generations of inkjet inks.
BASF offers state of the art high molecular weight dispersants that provide steric stabilization to the pigment dispersion.
Content

- Introduction: inkjet needs high performance dispersants
- New tailor-made solutions for inkjet inks
- Performance and product selection
- Summary
Tailor-made solutions for inkjet inks
Development of new dispersants

- **BASF dispersant technologies**
  Prototypes with systematic variations of different dispersants chemistries

- **High performance pigments**
  Most relevant pigment chemistries and pigments were used to test the dispersant performance

- **Formulation types used for widescreen inkjet printing**
  Most relevant formulation systems used to screen performance
A new family of dispersants

Efka® 7701  Efka® 7731  Efka® 7732

- Patented products and technologies
- Tailor-made for high performance printing applications
  - Inkjet and energy curable applications

- No solvents
- > 95% active content
- Liquid at room temperature
Content

Introduction: inkjet needs high performance dispersants

New tailor-made solutions for inkjet inks

Performance and product selection

Summary
## Mild Solvent inkjet

<table>
<thead>
<tr>
<th></th>
<th>Comp B</th>
<th>Comp A</th>
<th>Comp C</th>
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<tr>
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<tr>
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<tr>
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<tr>
<td>Irgalite Blue GLVO</td>
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</table>

Evaluations carried out for millbase & final ink.
Scoring for combination of millbase & final ink

**Key:**
- √ = Best Benchmark for MB & FI
- X = No Suitable Benchmark for MB & FI
- ▼ = Inferior to best Benchmark
- ▲ = Superior to best Benchmark
- ▼ = Equal to best Benchmark

### Solvent free products:
- Best are Efka® 7701 and Efka® 7731

### Products in solvent: Efka® 7700 to complete the offer for black
### Strong solvent inkjet

Evaluations carried out for millbase & final ink.

Scoring for combination of millbase & final ink

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<td>▼</td>
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</tbody>
</table>

- **Solvent less products:**
  - Best results with Efka® 7701 and Efka® 7732
  - Including solvent containing products: Efka® 7700 for black.
### 100% UV curable inkjet

Evaluations carried out for millbase & final ink.

**Scoring for combination of millbase & final ink**

<table>
<thead>
<tr>
<th>Color index</th>
<th>Comp A</th>
<th>Comp B</th>
<th>Comp D</th>
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#### Best results with Efka® 7701 and Efka® 7731
Introduction: inkjet needs high performance dispersants

New tailor-made solutions for inkjet inks

Performance and product selection

Summary
New family of premium dispersants for inkjet inks

These dispersants enable best performance over a range of formulations and pigment chemistries.

<table>
<thead>
<tr>
<th></th>
<th>100%-UV Inkjet</th>
<th>Strong solvent Inkjet</th>
<th>Mild solvent Inkjet</th>
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Efka® 7701
- Allround premium product

Efka® 7731 & Efka® 7732
- Complete the offer for the tested applications and pigment chemistries
Dispersing agents for industrial wide- and super-wide-format printing inkjet printing

Efka® 7701

Efka® 7731

Efka® 7732

- High Molecular Weight Dispersants
- Excellent dispersion stability
- Low viscosities
- Near Newtonian flow behavior
- State of the art technology
- Easy to handle