Durst Water Technology

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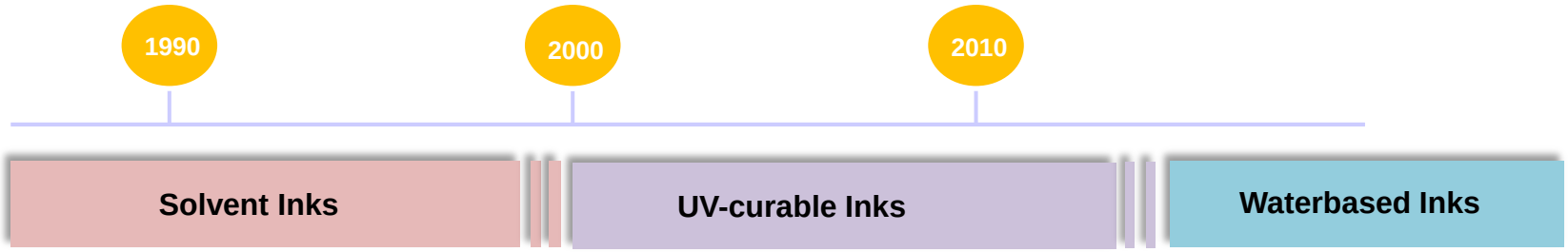
- Durst is pursuing a long-term strategy to develop non-toxic, as well as odor- and migration-free printer systems.
- The first Milestone represented the introduction of Rhotex waterbased dispersed-dye Inks in 2010
  - Guarantees clean and sustainable production processes
  - Ecological and economical benefits

Durst Water Technology

Inkjet Technology Evolvement:
Water-based inks will be the innovative ink technology in the next decade



- New directives such as REACH and the implementation of positive lists for the restriction of chemicals create a need for “green” solutions
  - Health and safety regulations
  - Odour, Migration, Emission, Evaporation
- These restrictions create limitations for penetrating into segments like interior design and packaging.

Functional Aqueous Inks

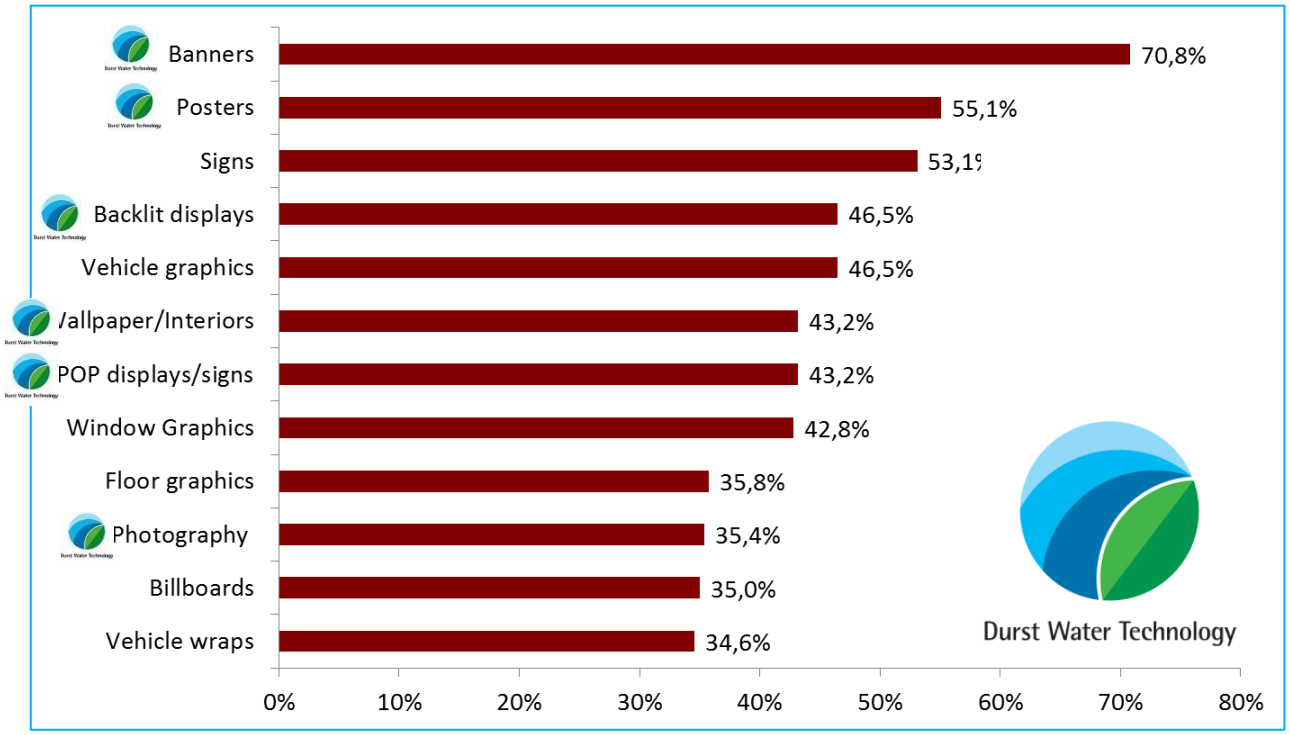
Functional Aqueous Inks provide Durst with a unique selling point in the market and reinforce Durst's position as the innovation leader in digital large-format printing

- Functional Aqueous Inks combine the advantages of UV-curable inks and pure aqueous inks.
  - Highest image quality (Offset look and feel)
  - Odorless ink film
  - Low migration (depending on substrates)
  - Compliant with strictest health and safety regulations (Nestle Standard)
  - Broad media range including non-absorbent materials

Durst Water Technology

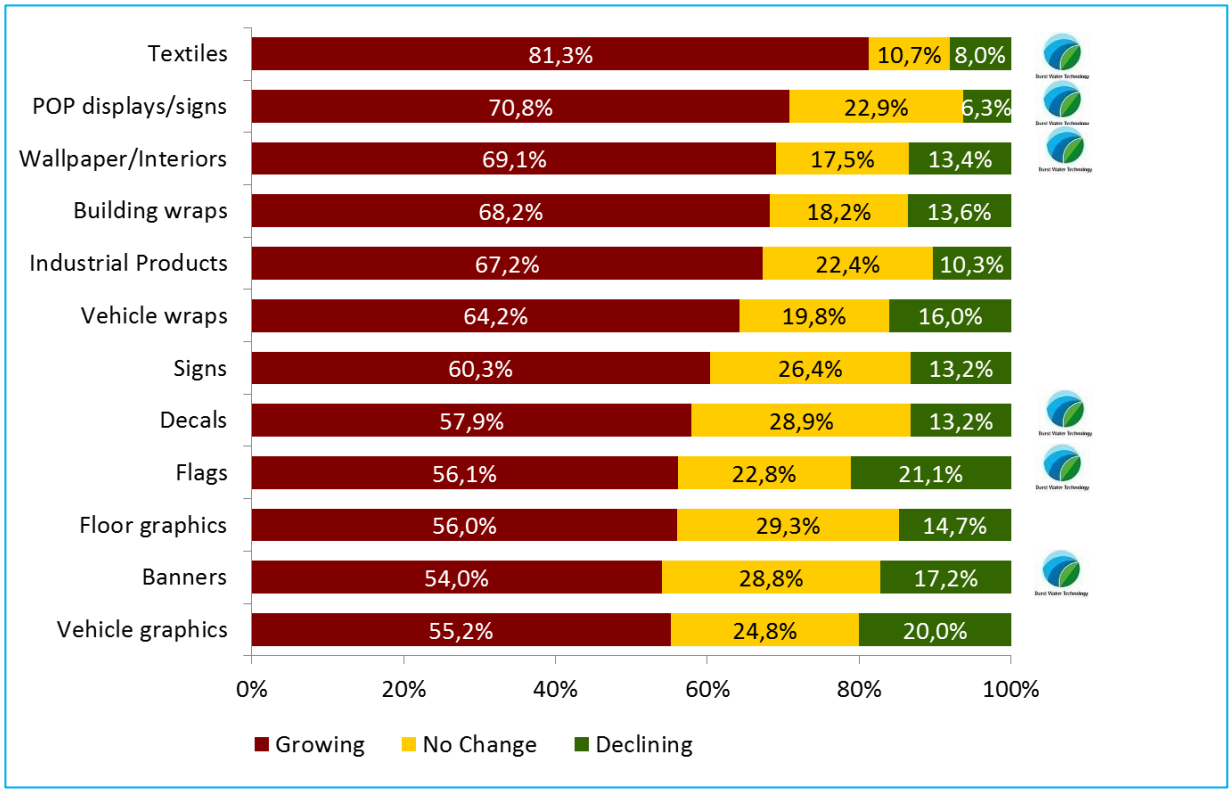
Market Overview

Top Twelve LFP Applications Produced



50 % of the most important LFP-Applications are ideally suited for functional acqeous systems

LFP Applications with high growth rates



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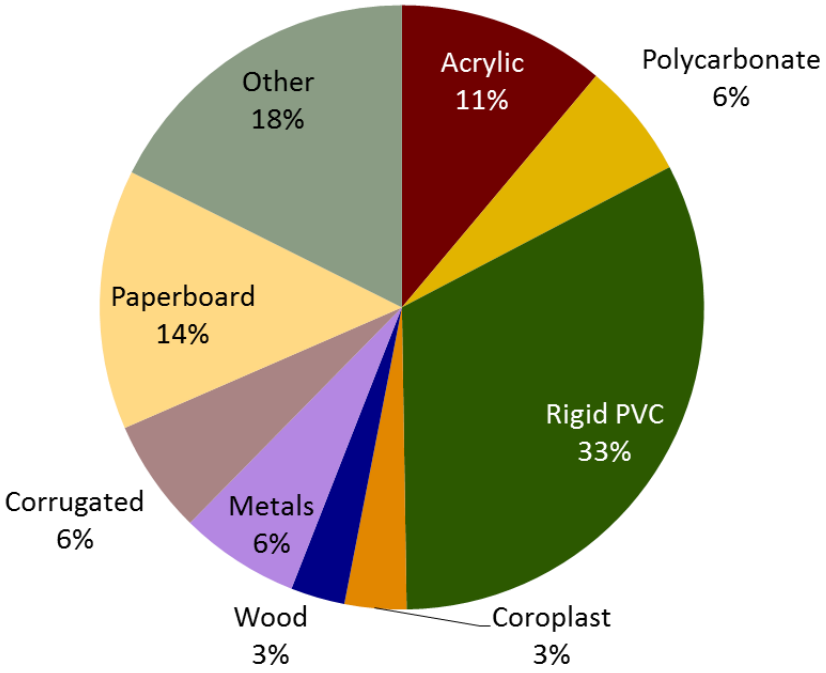
Functional Aqueous Inks are the best solution
for 50% of high growth applications

LFP - Rigid Media Mix



Material	%
Rigid PVC	33%
Paperboard	14%
Acrylic	11%
Corrugated	6%
Polycarbonate	6%
Metals	6%
Wood	3%
Coroplast	3%
Other	18%

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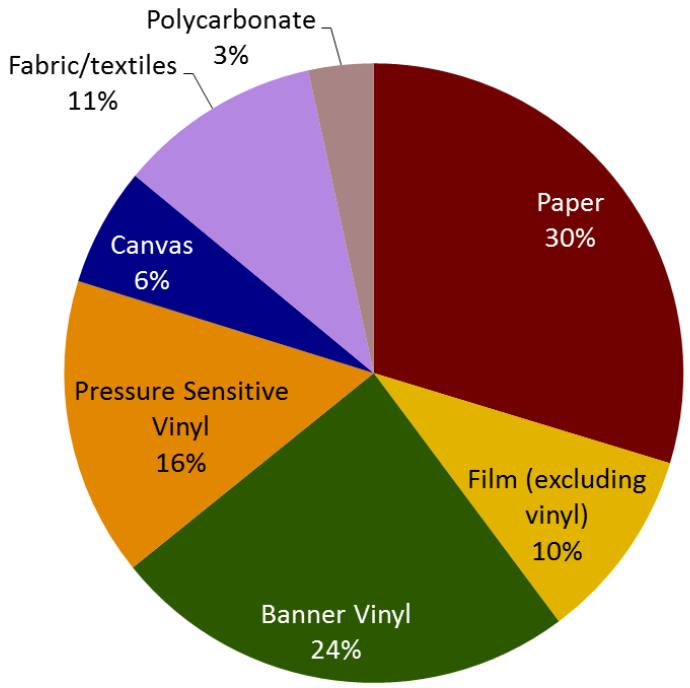
Functional Aqueous inks are ideally suited for at least 56% of rigid materials.

LFP - Flexible Media Mix



Material	%
Paper	30%
Banner Vinyl	24%
PSV	16%
Textiles	11%
Film	10%
Canvas	6%
Polycarbonate	3%

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Functional Aqueous inks are best solution for over 90% of flexible materials

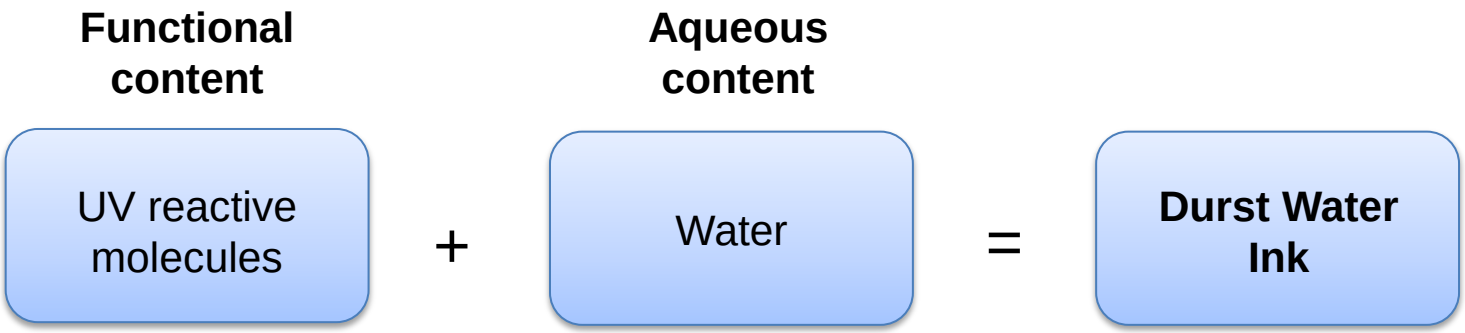
Key Technology

Durst Water Ink Technology

Drying and Curing Technology

Printhead Technology

Durst Water Ink Properties



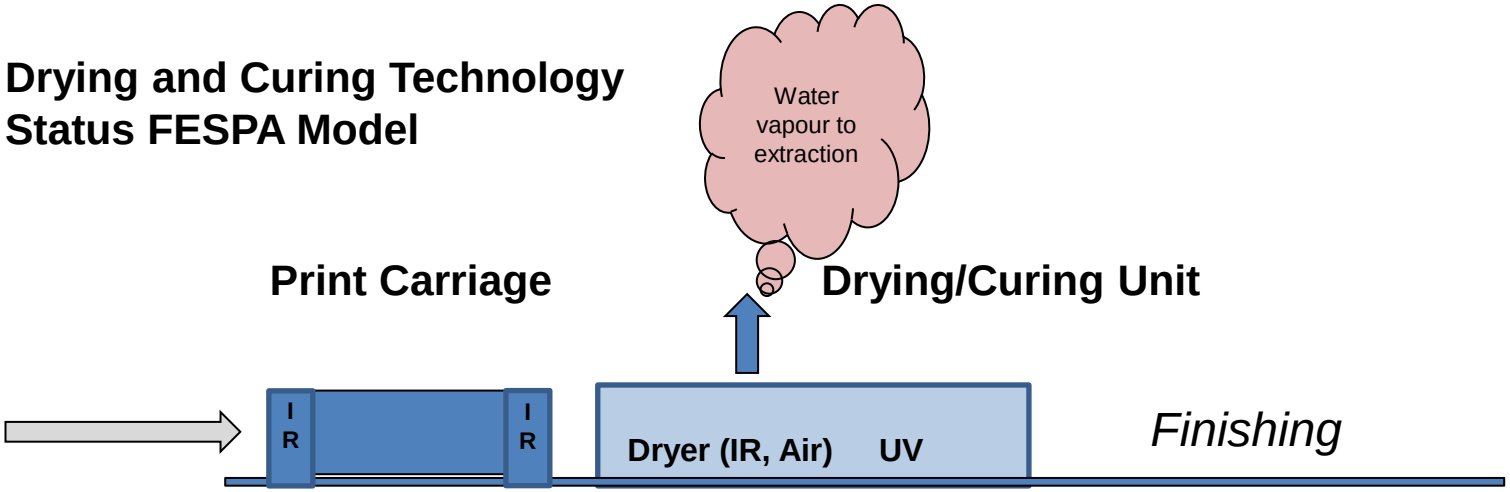
Assures:

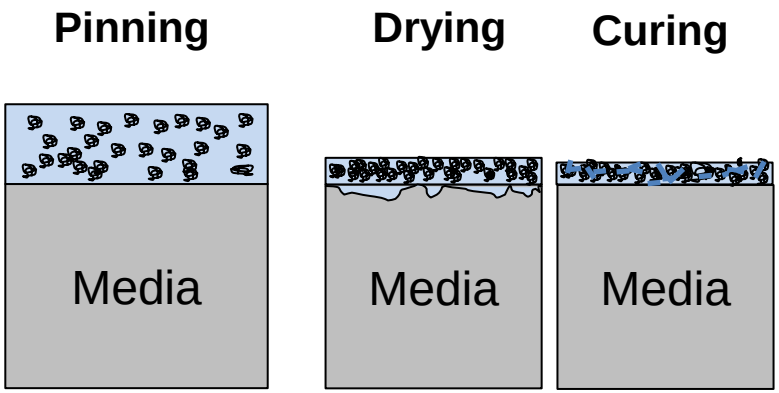
- High adhesion range
- Resistance parameters
- Durability

Assures:

- No odour
- Highest flexibility
- Low migration

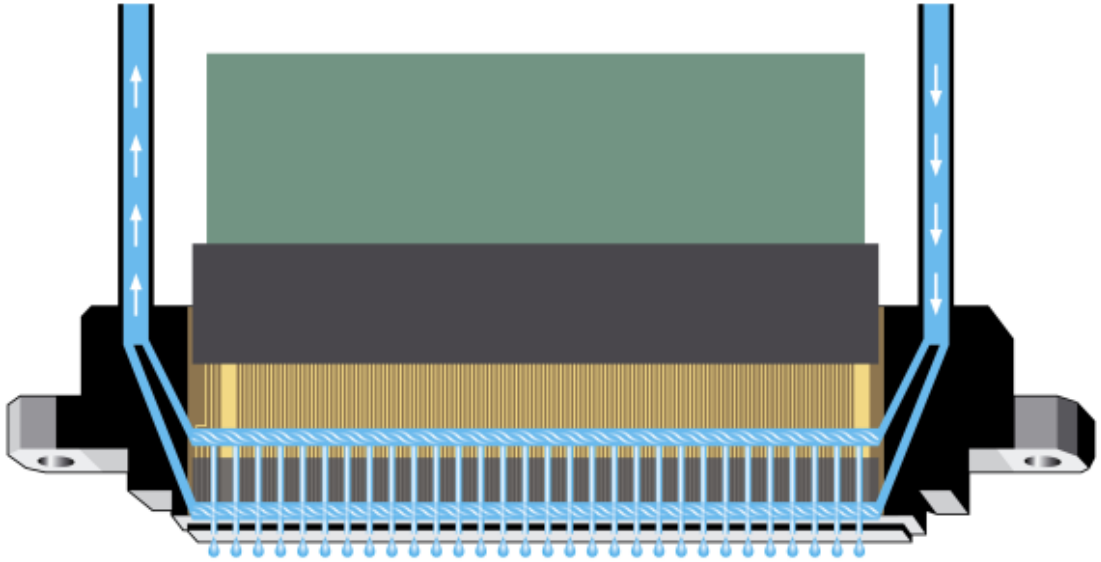
Drying and Curing Technology
Status FESPA Model

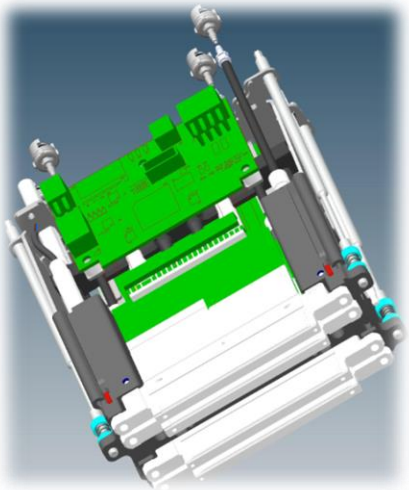




Printhead Technology

- Introduction of Durst Quadro Array 10 WM print heads
- Additional circulation of ink directly behind the nozzle plate of the print head to ensure open time and reliability
- Non wetting coating on the nozzle plate prevents ink build up and forming of nozzle ring
- Maintenance: current status one wet clean in the morning and one purge per shift





Durst Water Ink Technology

Criteria	Durst Rho UV Inks	Durst Water Inks
Hazard Labelling (H&S/Regulatory)	Required according REACH regulations	Current status: label free
Film thickness	High	Low
Application Range	Wide incl. high resistance requirements	Wide incl. odourless and low migration requirements
Drying Arrangements	UV curing but with penetration – potential uncured species on board	Staged process – Penetration, IR-pinning, IR/Heat drying, UV curing
Machine reliability/maintenance	1 purge per shift	Wet cleaning plus 1 purge per shift
Power Consumption	P10 250 HS: ~12 kW	TBD
Odour	Moderate	No Odour

Introduction Rho WT 250 HS

- No Odour
- Litho quality
- Low migration

Rho WT 250 HS Key Features

- Implementation of Durst Quadra Array 10 WM Printheads
- Drop size of 10 pcl
- Productivity
  - Same speed level as Rho P10 250 HS UV
  - Higher quality variation depending on media type
  - Pinning and curing stage are still in optimization phase
- Resolution up to 1000 dpi
- Infrared drying in combination with conventional UV curing
- Up to 6 Colours
  - CMYK
  - CMYKcm

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