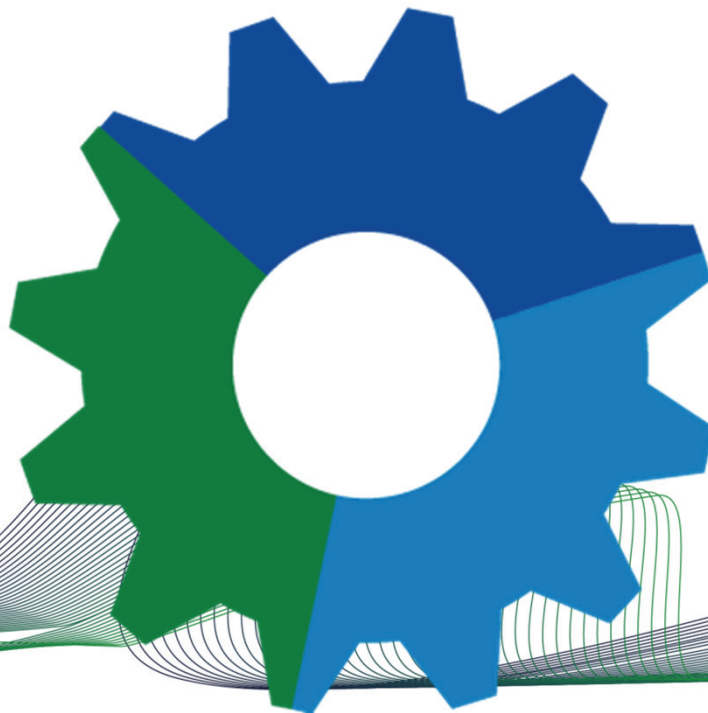


Improvements in offset printing performance

GoSize[®] - PetroSize[®] - PrimeSize[®]

A strong network



Chemigate / Finland

- Three starch plants in Finland
- R&D Centre
- New Scirocco Technology

Biomontan GmbH / Austria

- Sales & Resourcing partner
- Analytic Laboratory

GoChem / Germany

- Consultant for BioMontan
- Consultant for Chemigate
- Paper Engineer

Chemigate

Chemigate Ltd. in brief

- Located in Finland
- Products:
 - modified starches for industrial applications
 - a range of cationic starch based polymers in liquid form

Chemigate Ltd. - product overview

- **Starches** for paper coating, wet end, surface sizing and spray applications
 - dry, slurry, liquid
 - cationic, anionic
 - different stability, viscosity, solid content
- **Starch based liquid Speciality polymers**
- **Hydrophobic sizes**
 - liquid AKD wax emulsions
 - based on synthetic or starch polymers
- **Cationic reagents**

Biomontan GmbH in brief

- Located in Austria
- Products:
 - products & systems with focus on pulp & paper industry, environmental engineering and other specialised industries
 - wide product range in polymers and biocides

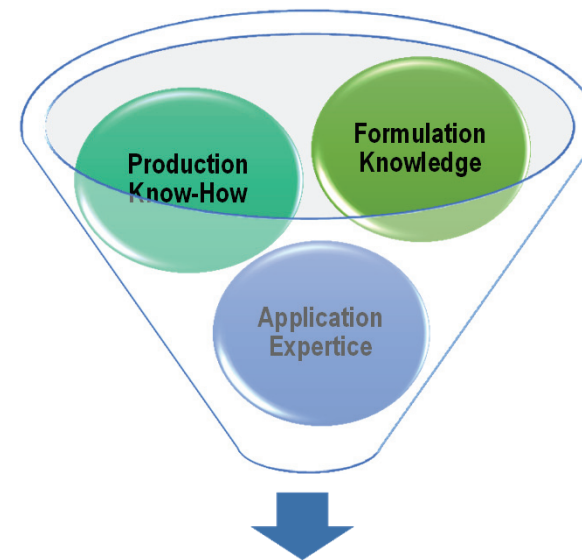
Biomontan GmbH – overview

- **Full-Service-concept**
 - Laboratory analyses in our in-house analytical lab with highly modern equipment
 - Application support and consulting
 - System optimization and stabilization
 - Product development – tailor-made chemical solutions for various tasks
 - Dosing technology and equipment
- **Wide product range**
 - polymers and biocides
 - various products for a wide application range
- **Own production facility** in Enns, Austria

(Go/Petro/Prime)Size[®] - hydrophobic sizes

Unique liquid AKD wax emulsions based on synthetic or starch polymers for stock & surface sizing applications

- increases hydrophobicity
- enhances dimension stability
- reduces liquid absorption
- reduces dusting and linting
- improves printed image
- **Additional positive effects on:**
 - machine runability
 - demand of other chemicals



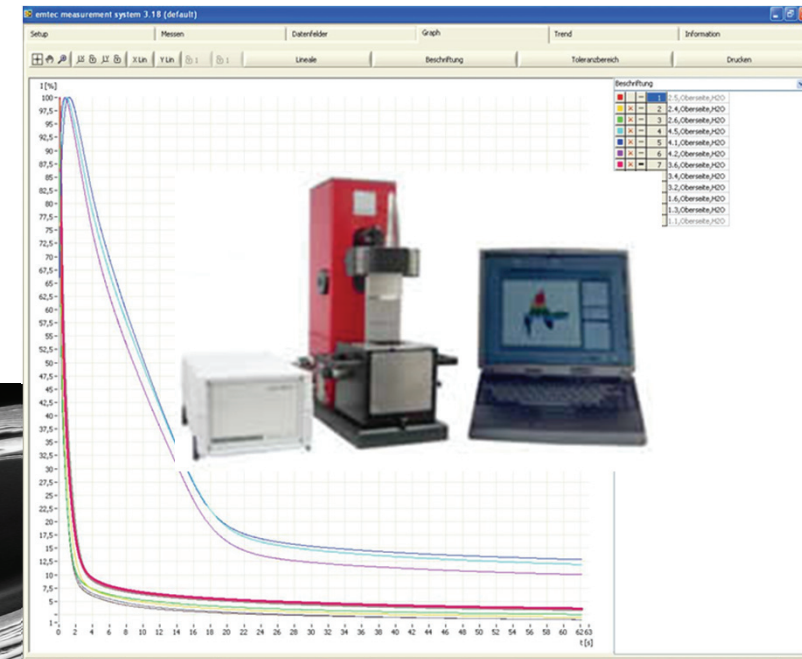
(Go,Petro;Prime)® Size

Chemigate

(Go/Petro/Prime)Size®

impact on essential properties of the finished paper and board

- **Optimized paper performance** with respect to absorption of liquids, writing and printability
- **Improved dimension stability** (longitudinal and transverse extension during printing) of newsprint paper



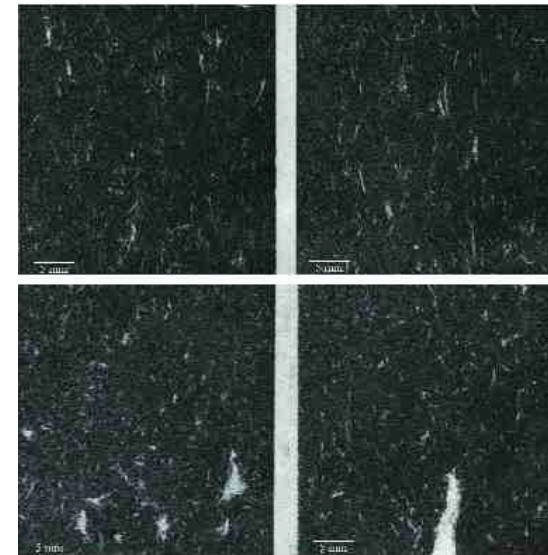
(Go/Petro/Prime)Size[®] - Anti linter

Offset linter of Newsprint and Uncoated Mechanical Papers has been an issue for many years.

Linter is the removal of material from the surface of Newsprint Uncoated Magazine Papers during offset printing and can result in reduced image quality and press productivity.

Advantages of using starch-based ...[®]Size:

- sheet smoothness
- linter propensity
- ink and water holdout
- printability
- pressroom runnability



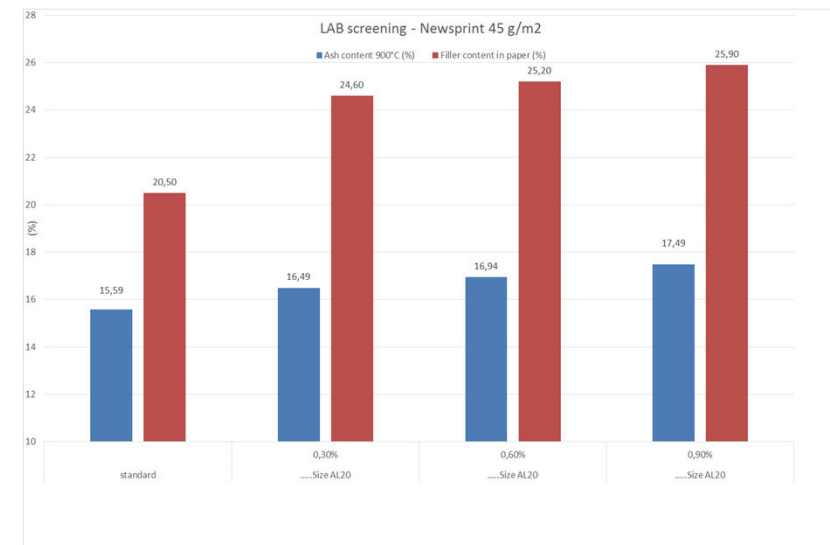
(Go/Petro/Prime)Size®- filler content in paper

Innovative, multifunctional chemical additives based on starch are developed to improve properties in printing of paper.

They also improve or keep on strength parameters in paper – by increasing of filler content in paper - and at the surface. Further on control of hydrophobia is possible by positive affect in penetration of liquids.

Advantages of using starch-based ...®Size:

- Obviously reduction of total sizing additives
- Obviously reduction of wet-end-starch and retention aid
- Improvements in printability
- Improvements in strenght parameters by increasing the filler content in paper



Thank you