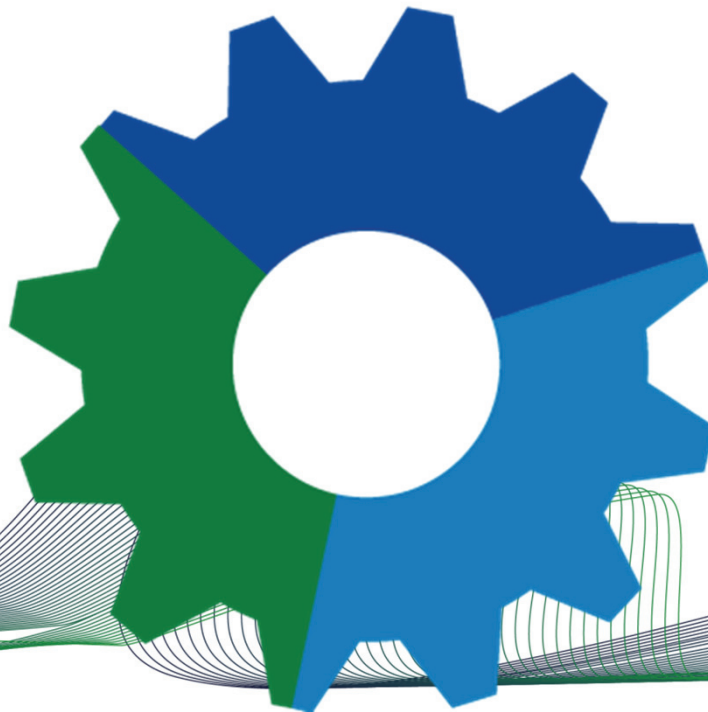


Improvements in Tissue Paper Grades

GoBond[®] - PetroBond[®] - PrimeBond[®]

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 specialized 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)Bond®

Dry strength agents

>> Higher internal bond strength

>> Improved surface strength and printability

>> Improved soft strength in tissue applications



(Go/Petro/Prime)Bond®

Benefits in Tissue Paper Grades

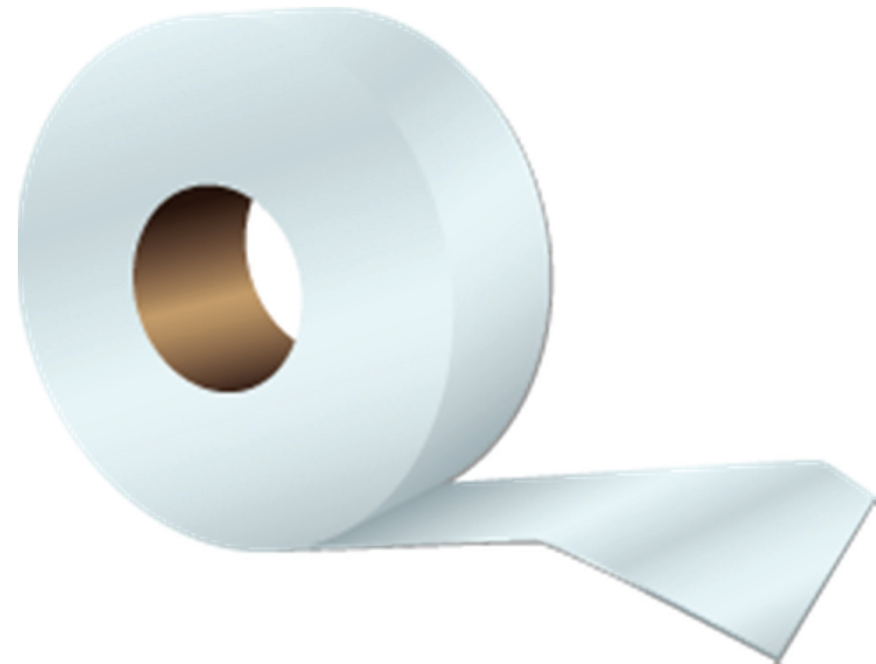


- Improves **retention**
- Improves **dewatering**
- Improves **wet web strength**
- Improves **strength properties**
- Reduces **dusting**

- Additional **positive** effects on:
 - Machine runnability
 - Demand of other chemicals

(Go/Petro/Prime)Bond[®] - Retention

- **Improved retention parameters**
- **Reduced system ATC-load** discharging of water loops, better fibre recovering work
- **Reduced chemical consumption** (Defoamer, RDA, Wire & Felt Conditioning, etc.)
- **Reduced variations in coating condition** (CD, Defoamer, Coating Chemicals, etc.)
- **Reduced depositability**



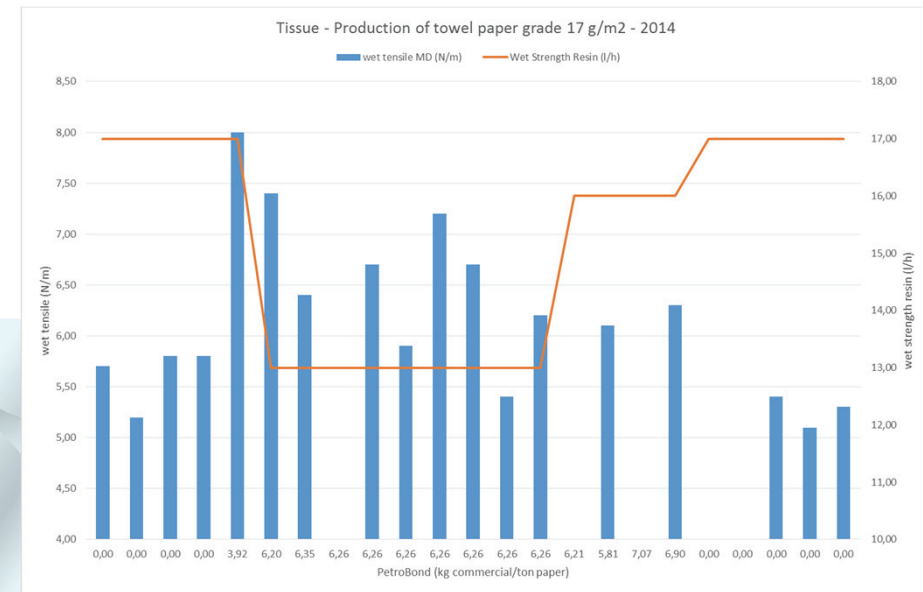
Chemigate

(Go/Petro/Prime)Bond[®] - *Dewatering*

- **Reduced Chemical Consumption** through Synergism (e.g. RDA)
- **Reduced Steam Consumption**
- **Reduced Hot Air Consumption**
- **Higher Machine Speed**

(Go/Petro/Prime)Bond® - Wet Web Strength

- **Less Wet End Breaks on Tissue Machines**
(impact to better runnability)
- **Savings in wet-strength-resins**



(Go/Petro/Prime)Bond[®] - *Strength properties*

- **Improved Tensile (MD & CD)** – possibilities in using more short fibres or worse waste paper in furnish (**costs savings**)
- **Improved Extensibility**
- **Chance of lower refining** – improved softness or less creping resulting higher production



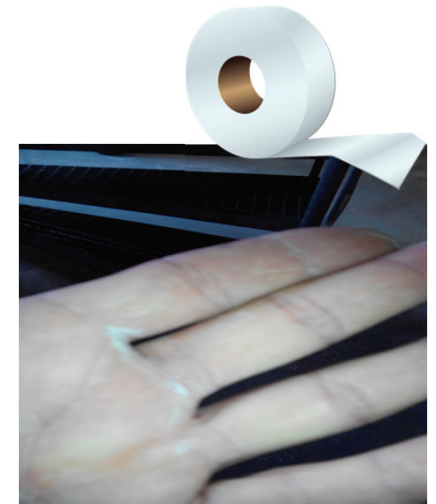
Chemigate

(Go/Petro/Prime)Bond® - Other Positive Effects

- **Reduced Dusting:**
 - no dusting onsite the paper machine
 - better conditions in converting
- **Reduced Blistering**
- **Reduced Yankee Depositions**



Without...®



With...®

Thank you