

# Paper Technics

# Paper Chemistry Webinars 2017



## DETAILED CONTENT SUMMARY



# Dates of Webinars



- Paper Chemistry - 18th April, 2017  
**(Introductory level)**

## **Intermediate level webinars**

- Sizing - 25th April 2017
- Strength additives – 9<sup>th</sup> May 2017
- Retention – 16<sup>th</sup> May 2017
- Fillers – 23<sup>rd</sup> May 2017
- Process Chemicals - 6th June 2017

# Paper Chemistry Webinar (Intro level) – 18<sup>th</sup> April

## Detailed Contents



- **Overview of a traditional fine papermachine**

- Chemicals used in fine papermaking

- ✦ Sizing (AKD, rosin/alum, rosin/PAC, ASA)
- ✦ Fillers (Chalk, clay, titanium dioxide, PCC)
- ✦ Retention aids (single, dual and multi-component systems)
- ✦ Strength aids (dry strength and wet strength)
- ✦ Process chemicals (defoamers, biocides, charge control)
  
- ✦ Details of function, paper properties affected, addition point considerations, suitability for paper grades and troubleshooting tips will be discussed for each of the above chemical categories
  
- ✦ General discussion on chemical recommendations for Brown grades (liner and fluting), newsprint, fine and speciality papers depending on attendee interests

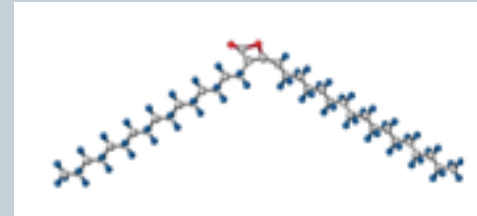


# Sizing Intermediate – Overview of Contents (1)

25<sup>th</sup> April, 2017



- Paper machine schematic of wet-end
- Sizing types (AKD, rosin, ASA, SMA, PUD, etc)
  - Sizing methods (wet-end and surface)
  - History of development
  - Expected addition levels
- **AKD**
  - Main reactions – to fibre and hydrolysis – effects
  - Historical development of AKD – from solid wax in 1950s to liquid wax emulsions and blends with rosin
  - Typical addition levels per grade, temperature in wet-end, curing of different types of AKD: dryer cylinder profiles



# Sizing Intermediate – Overview of Contents (2)



- Charge, cationic concentration, interfering reactions, drying considerations for different sizes
  - Rosin
    - Alum vs PAC for acidic and pseudo neutral systems
    - History of development – from rosin soap to emulsions
    - Expected addition levels and effect of addition points
  - ASA
    - Main reactions – to fibre and hydrolysis – effects
    - Historical development of ASA – emulsification methods
- Troubleshooting for all sizing groups, cure rate methods, sizing tests

# Strength Aids Intermediate – Overview of Contents (1)

9<sup>th</sup> May, 2017



- Papermachine layout and addition points for strength additives
- Types of strength aid
  - Dry strength (synthetic and natural)
  - History of development – from starch to synthetics
  - Expected addition levels and effect of addition points
  - Effects on strength properties
  - Wet strength (UF/MF/PAAE types) and co-additives

# Strength aids Intermediate (9/5/17)

## – Overview of Contents (2)



- **Charge, cationic concentration, interfering reactions, drying considerations for different strength aids**
  - **Starch**
    - Types of starch (cationic, amphoteric, anionic)
    - Starch bases (potato, maize, tapioca, etc)
    - Starch preparation equipment
    - Expected addition levels and effect of addition points
  - **Wet strength**
    - Main reactions – to fibre and hydrolysis – effects
    - Historical development of wet strength – UF and MF resins to PAAE
- Troubleshooting for all strength aid groups

# Retention aids – Overview of Contents (1)

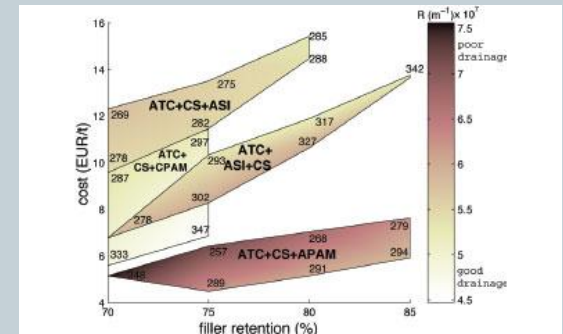
16<sup>th</sup> May, 2017



- Papermachine layout and addition points for retention aids

- Types of retention aid

- Single/dual/multi component systems
- History of development – from alum to multi-component
- Expected addition levels and effect of addition points for various systems; effects of ATCs
- Effects on paper properties and process
  - ✦ Porosity, formation, dewatering on wire section, strength
  - ✦ Production rate, material utilisation





# Process Chemicals – Overview of Contents (1)

6<sup>th</sup> June, 2017



- Papermachine layout and addition points for process chemicals
- Types and functions of process chemicals
  - Main groups: defoamers/de-aerators/biocides/charge and deposit control chemicals
  - History of development
  - Expected addition levels and effect of addition points for various systems
  - Effects on paper properties and process
    - ✦ Porosity, formation, dewatering on wire section, strength
    - ✦ Production rate, material utilisation

# Process Chemicals Intermediate (6/6/17)

## – Overview of Contents (2)



- Charge, cationic concentration, interfering reactions,
  - Process chemicals
    - Mechanisms of operation for each major group
  - Other subjects
    - Dosing equipment
    - Safety
    - Case studies/examples/exercises
- Troubleshooting for process chemicals

# How to Book a place...



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