



Organization of a Bleach Plant Trial

PAPTAC Bleaching Committee
Spring 2019 meeting
Quinnesec, MI
May 14, 2019

Ross Anderson

ARKEMA
INNOVATIVE CHEMISTRY



Some thoughts about...

Experimentation in a Bleach Plant

➤ **Is there a problem that must be solved?**

- Define it!

➤ **Is there a need that must be met?**

- Whose need!

➤ **Who are the stakeholders?**

- How does it impact the jobs/lives of the people involved?

➤ **What constitutes a SUCCESS?**

- Who decides on success?
- What are the criteria for a success?
- How is it measured?

Before the Trial Starts

- **Is the technology known?**
- **Is the technology understood?**
- **Has the technology been implemented elsewhere?**
- **Do we know what to expect?**
- **Has there been a literature search?**
- **Have there been bench-scale tests?**
- **Have there been pilot-scale tests?**

Anthraquinone – case study

➤ **Over 100 mills jumped on the bandwagon in the early 1990s**

➤ **Increased rate of delignification**

- Increase pulp yield
- Decreased pulping time and temperature
- Decreased chemical charge

from: Anthraquinone – A Review of the Rise and Fall of a Pulping Catalyst
Peter Hart, Westrock
Alan Rudie, USDA Forest Products Lab
presented at 2014 TAPPI PEERS Conference, Tacoma, WA

Anthraquinone

- **Yield improvement is modest and in many situations can't be measured**
- **Mechanism not well understood**
 - **Mill trial outcomes highly varied**
 - **Some reported measurable benefits**
 - **Some reported no benefits**
 - **Some reported short-lived benefits that could not be maintained or reproduced**
- **Benefits can go to a different cost center than the cost center experiencing the Costs**

Anthraquinone

Regulatory Issues

- FDA
- Prop 65
- BfR (German Federal Institute for Risk Assessment)

Impact on Downstream Processes

- Perceived negative impact on tall oil downstream processing

Distilled Peracetic Acid

- **TCF driving force went away**
- **Hard to make an economic case on ClO₂ savings**
- **'View isn't worth the climb' for ClO₂ generation capacity limitations**
- **Cost in Bleach Plant.... Benefits in Paper Machine**
- **Potential COD issue**

Who is involved?

- **Whose involvement will give it the best chance for success?**
- **Who isn't being involved who could impact the outcome of the trial?**

What to Do?

- **Educate yourself**
- **Seek the help of people who have done it before**
- **Listen to the operators and mechanics**
- **Get Operations on board**
- **Let people know what is at stake**
- **Get agreement from management on what constitutes success**
- **Communicate the trial plan**
- **Communicate the progress**
- **Communicate the success**