

# COST STSM E48-1217

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Sofia 26-10-07

# Introduction

- DIP and TMP mixed for some grades
- Increase of proportion of DIP increases runnability problems
- Solving DIP-TMP deposition synergy could remove some limitations on DIP usage

# Introduction

- Reasons behind mixing problems are still unclear
  - Components from TMP destabilize DIP-water components?
  - Increase in  $\text{Ca}^{2+}$  from DIP destabilizes resin acids from TMP? (Allen, L.H. & Oullet, S., P&P Can 108:3 2007)
  - Lack of sterically stabilizing substances in DIP water? (Johnsen, I., Nord Pulp Pap Res J 19:1 2004)

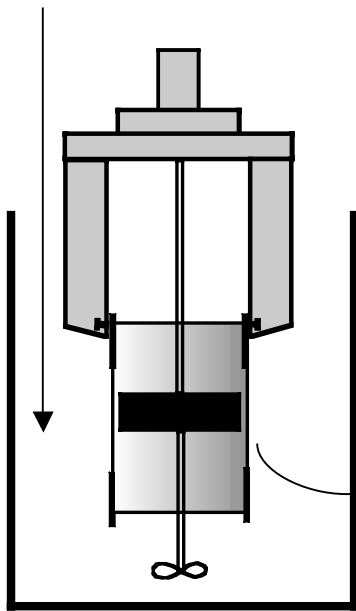
# STSM

- STSM (April 2007)
  - Cooperation
    - Host: UCM (Universidad Complutense de Madrid)
    - ÅA (Åbo Akademi University – Turku, Finland)
  - Mixing synergy between
    - UCM – deposition experience and measurement
    - ÅA – analysis of deposits

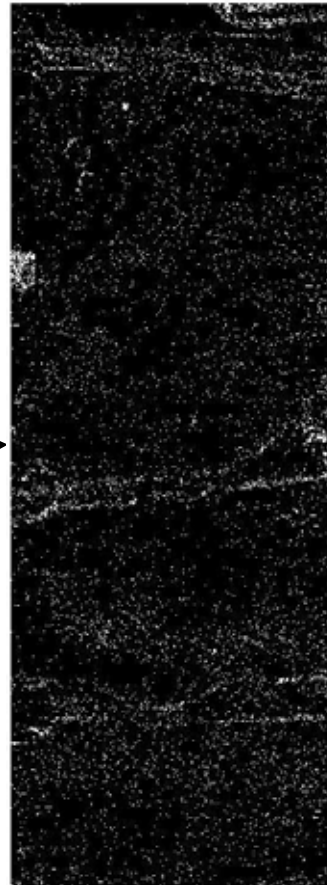
# Experimental

UCM

DDJ-fractionated filtrate (DIP or DIP/TMP)

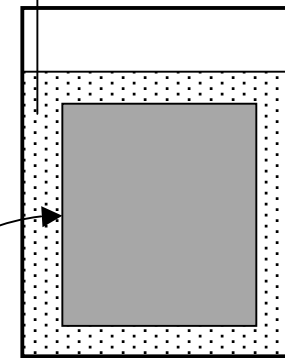


scanned



ÅA

solvent



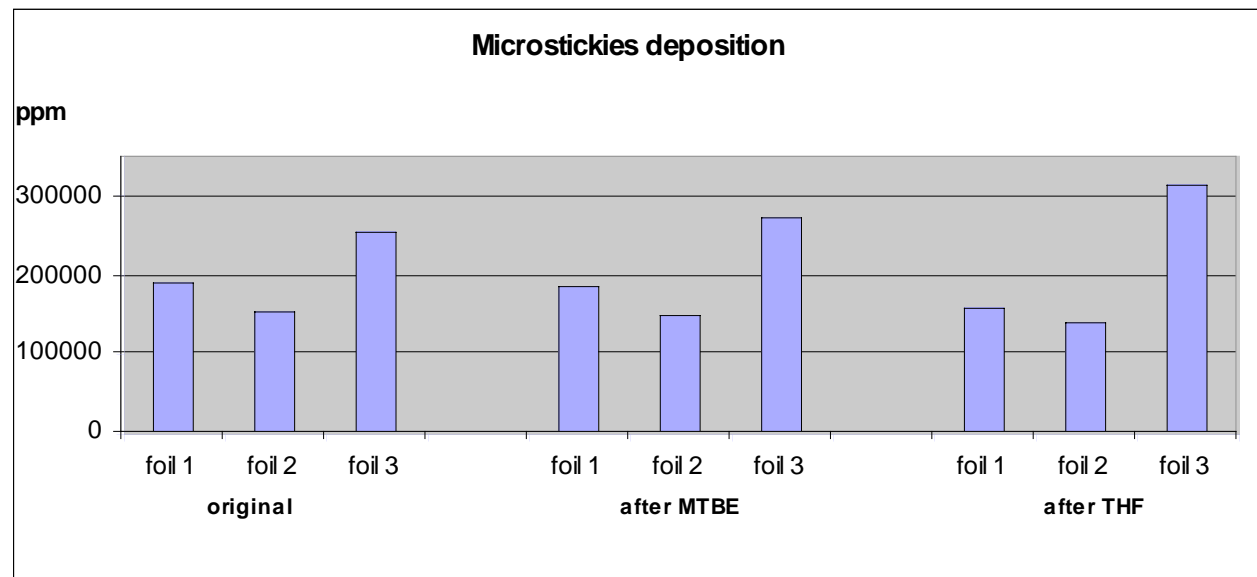
ultrasound

HPLC

*adhesives, extractives*

# Method evaluation – Step 1

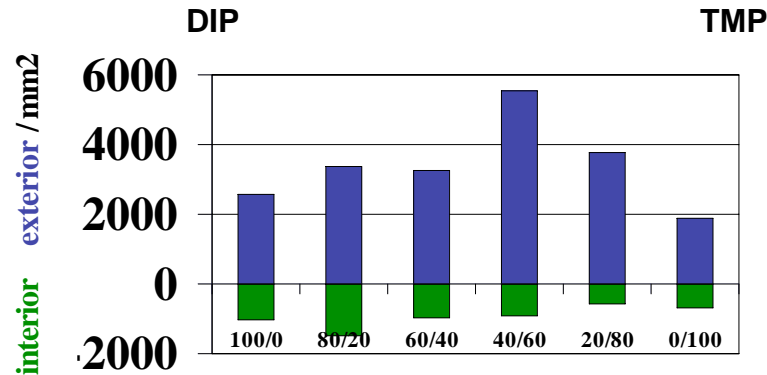
- Extraction with MTBE and THF (DIP water)
- No differences in scanning results before and after



# Method evaluation – Step 2

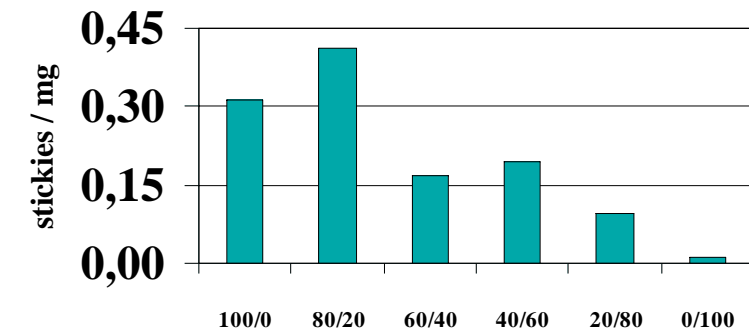
- Increase extraction time and temperature
  - 11% less deposition (by scanning) by THF extraction
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- Extract with THF followed by acetone
  - GC-analysis of acetone extract reveals only <1% not already extracted by THF

# Experimental results (DIP/TMP)



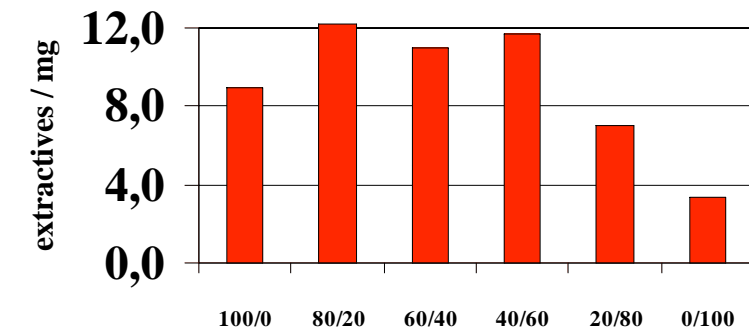
Total deposition (by scanning)

- synergy seen between DIP/TMP
- maximums at
  - 40% DIP (external)
  - 80% DIP (internal)



Stickies (extracted by THF + HPLC)

- possible synergy curve
- maximum at 80%



Extractives (extracted by THF + HPLC)

- apparent synergy
- maximum at 80-40% DIP
- much higher deposition of extractives

# Continuation

- Further trials to be carried out at UCM with AA providing assistance with analysis
- TMP – DIP mixtures
- TMP water mixed with individual DIP “components” (Ca<sup>2+</sup>, etc.)
- DIP water mixed with individual TMP “components” (resins, etc.)

# Continuation

- Planned publications
  - Deposition synergy between TMP and DIP waters (current data)
  - Potential detrimental characteristics of TMP/DIP water for deposition (to come)

# Appreciation

- Much appreciation to COST E48 and MC.
- Thanks to host UCM