New recovered paper pulping strategy using intermediate fractionation - cooperation with SSCCP

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Background

- Purpose of deinking pulping is to
  - detach ink from fibres
  - achieve complete defibering
  - BUT, not to dissolve printing ink binder

- Removal of small-sized ink is difficult during flotation deinking
  - Excessive ink fragmentation should be avoided
Objectives

- Objectives were to compare
to

- sequential pulping process having intermediate fractionation

Fibre fraction

Fines fraction
Materials & methods

- Raw material:
  - Flexographic ONP 10%
  - Offset ONP 90%

- True-neutral pulping conditions
Results - ink fragmentation

- Direct pulping process (10 min)
  - Residual ink 1385 ppm
  - Brightness 41.1%

- Sequential pulping process (2+8 min)
  - Residual ink 660 ppm
  - Brightness 48.7%
  - After first pulping stage
Results - attached ink

- Direct pulping process (10 min)
- Sequential pulping process (2+8 min)
Results - attached ink

- Direct pulping process (10 min)

- Sequential pulping process (2+8 min)

- After second pulping stage
Fractional deinking concept for newsprints

PULPING

FRACTIONATION

Fibre fraction
Fines fraction

PULPING

FLOTATION

TO 2nd LOOP or PAPER MILL
Conclusions

• Newsprint inks has reasonably high tendency to fragment and redeposit (higher for flexo)

• True-neutral, very short pulping
  - Ink fragmentation and redeposition avoided
  - Suffers from incomplete defibering

• Fractional process with sequential pulping at true-neutral chemical environment
  - Ink fragmentation and redeposition avoided
  - Complete defibering achieved
Further information


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