Monitoring plastic contamination in furnishes for coated paper & board

OpTest Equipment Inc.
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Plastic Contamination Problems

- Sticking to Driers / Web Breaks
- Holes in Paper
- Coating Steaks
- Print Quality Problems
Traditional Plastic Monitoring

- Limitations of optical based inspection:
  - White & light coloured specks typically go undetected
  - Most plastic contaminants are white or clear!
Monitored by the Paprispec
(Courtesy of FPInnovation-Paprican)

- Mostly white plastic that are not detected optically
Monitored by the Paprispec
(Courtesy of FPInnovation-Paprican)
On-line Plastic Monitoring

- The Paprispec overcomes the limitations of optical inspection
- The principles of operation ...
Paprispec™ Diagram

- Hydrocyclone
- Control Valve
- Manual Valve
- Air Line
- Fresh Water Line
- Mini-Screen Motor
- Collection Cup
Types of Plastic Collected

- **Size Range**: [100 - 500 μm]
- **Specific Gravity**
  - HDPE, HDPP (SG <1)
  - Nylon, Polystyrene (SG >1)
- **Mostly Clear or White**
Zero Plastic Furnish?

- Size range: [200 - 800 μm]
- Mostly white or clear
- Felt hairs & filaments always present
- Background level of very small specks, may not cause problems….
Typical Plastic “Background”

Number of Plastic Particles per 100 kg OD Pulp

- Other Plastic
- Felt / Washer Fibre

Industry Average During PAPRICAN Trials

Industry Recommended Accepted Background

Time (days)
Conclusion

• Paprispec™ monitors 2-3 metric OD tonnes of furnish/day and expedites troubleshooting

• Paprispec™ isolates a wide range of plastic contaminants and catches outbreaks

• A ubiquitous “background” level of tiny plastic particles appears to be present

• Paprispec™ can minimize the occurrence of coating & printing problems