MSW processing: years of waste handling knowledge paired with technology
Presentation Goal

Present some of the key design factors in a MSW process
Summary

• About OEM
• MSW processing: key components
• Example of a facility: Valoris
• Conclusion
About Sherbrooke OEM

• Founded in 1997
• American and Canadian partner
• Started as an heavy duty equipment manufacturer
• Owned a multi-material facility and research center
• No cookie-cutter: custom design
About Sherbrooke OEM

• Two facilities totalizing 72,000 sq.ft in Sherbrooke, Qc, Canada
Few customers of Sherbrooke OEM

- New York, Toronto, Tampa, Portland
- Syracuse, Birmingham, Atlanta, Pittsburgh
- Hartford, Berlin
- Pompano Beach, Miami, Dania Beach, West Palm beach, Lantana, Deerfield
General Design Parameters

- Applies to all kind of waste:
  - Material composition
  - Desired Throughput
  - Labor costs
  - Disposal costs
  - End markets

- It’s all about $$$

3” minus organic waste
General Design Parameters

By use of separators, screens and sorters, divide the different types of materials in multiple streams of similar density / shape / composition.

1” minus organic waste
MSW Processing

Material we have to deal with is:

• Dirty
• Sticky
• Smelly

• Impact on sorting efficiency
MSW Processing

Design Key #1: Automation

Automate as much as possible and whenever required, only use humans to perform quality control on sorted products.

X-Ray and NIR optical sorter to clean the organic.
MSW Processing

Design Key #2: opening the bags

- Manual vs Automation
- Trommel vs Bag opener vs Shredder
- Capacity and advantages
- Where in the process
MSW Processing

Design Key #3: Screening

- Finger Screen
- Trommel
- Starscreen

- Pros and cons
  - Accumulation
  - Maintenance
  - Throughput
MSW – Key equipment

Design key #4: Cleaning the organic fraction

- Glass
- Metals
- Others

NIR & X-RAY

Small contaminants optically sorted from organic
MSW – Key equipment

Design key #5: plastic film vs paper vs container

- Ballistic separator
- Fiberscreen
- Optical sorter
- Film grabber
- Air vacuum

2D separator separates fiber/film/light 2D

Air Vacuum System

Mixed fiber optically sorted before manual QC
MSW – Key equipment

Design key #6: finished products

- 2-Ram baler
- Loading Docks

Dual Ram baler used to bale rejects and recyclables
Example - Valoris

• Valoris, Bury, Quebec, Canada

• Municipality owned landfill that wanted to increase its overall recycling rate;

• OEM designed, manufactured and installed three (3) processing lines:
  • 50 tph C&D
  • 25 tph Commercial
  • 50 tph MSW

Valoris 70,000 sq.ft facility in Bury, Qc, Canada
Example: Valoris

- **Labor:** 16 people on all three (3) processing lines
- **C&D sorted products:** metals, fines (2”-), aggregates, wood (A & B), shingles, hard plastics
- **MSW & Commercial:** Plastic film, Cardboard, Wood, Metals, Hard plastics, Mixed Fiber, Organics, PET, PE, PP, Tetrapak

Optical sorters do the sorting, QC is made by people in HVAC rooms
Valoris – Diversion rates

• C&D : 89 – 92%
• MSW : 35 - 55%
• Commercial: 50 - 85%
• Diverted materials:
  • Fines, recyclables and organic fraction.
  • No Fuel/Energy production

The excavator removes the large contaminants prior to feeding the Bag Opener
Valoris – Overall process
Conclusion

- Material conditioning is key
- Automate separation as much as possible
- QC rather than sorting
- Current limitations: next technology

THANK YOU