

Appendix E: Material Recycling System Issues Comparison Chart

Material	Collection			Processing			Manufacturing				
	% of Tonnage	Consistent Collection	Consistent Messages	% of MRF Revenue	Significant Processing Issues	Source of Cross-Contamination	Export/Local ⁴	Yield Loss	Prohibitives	Outhrows	Final Product
Cardboard	14%	●	●	10%	●	●	●	15%	●	●	Liner medium
Corrugated Non-waxed		In cart Beside cart					Both		Plastics Wax/glue	Boxboard Carrier stock	Boxboard Paper bags
Glass	5% - 10%	●	●	(cost?)	●	●	●	?	●	●	
Containers		In cart Beside cart Drop-off			●	●	Local (1) Local (1+) Local (1+)		Caps,lids,shred		Aggregate Fiberglass Containers
Metal	4%	●	●	14%	●	●	●	?	●	●	
Aluminum cans	1%	●	●	14%	●	●	Both		Plastic	Foil	Aluminum cans
Aluminum foil		●	●		●	●					
Steel cans	3%	●	●	Less than 1%	●	●					Steel billets
Pots/Pans		●	●		●	●					
Scrap		●	●		●	●					
Newspaper	31%	●	●	3% ¹	● ³	● ³	●	16%	●	●	Newspaper
Newspapers		●	●		●	●	Both		Glass, plastic	Browns	Phone books
Inserts		●	●		●	●					Paper bags
Plastics	7%	●	●	6%	●	●	●	?	?	?	
PET bottles		●	●	PET bottles	●	●	Both		Shred paper	Caps & lids	Fiber products
HDPE bottles		●	●	HDPE bottles	●	●			Fiber		Crates
Bags		●	●	Bags	●	●					Buckets
Buckets		●	●	Buckets	●	●					Carts
Dairy tubs/cups		●	●	Dairy tubs/cups	●	●					
Pill bottles - sm		●	●	Pill bottles - sm	●	●					
Nursery pots		●	●	Nursery pots	●	●					
Non-program		☒	☒	Non-program	●	●					
Mixed Paper	29%	●	●	59% ²	●	●	●	?	●	●	
Phone books		●	●	Phone books	●	●	Export (1)				Boxboard
Mail/Envelops		●	●	Mail/Envelops	●	●					Corrugated boxes
Mags/Catalogs		●	●	Mags/Catalogs	●	●					Printed boxboard
Boxboard		●	●	Boxboard	●	●					
Paper bags		●	●	Paper bags	●	●					
Frozen food boxes		●	●	Frozen food boxes	●	●					
Shredded paper		●	●	Shredded paper	●	●					
Milk/Juice cartons		●	●	Milk/Juice cartons	●	●					
Egg cartons		●	●	Egg cartons	●	●					
Soda/Beer cartons		●	●	Soda/Beer cartons	●	●					
Aseptic		●	●	Aseptic	●	●					
Paperback books		●	●	Paperback books	●	●					
Paper rolls/cores		●	●	Paper rolls/cores	●	●					
Gift wrap		●	●	Gift wrap	●	●					
Non-fiber		☒	☒	Non-fiber	●	●					

Notes

1. This is reversed with the Mixed Paper % if the supplier is selling their bales as MWP rather than ONP. Either way, soft fiber (non-OCC) makes up 60% of MRF revenues.
2. This is reversed with the Newspaper % if the supplier is selling their bales as ONP rather than MWP. Either way, soft fiber (non-OCC) makes up 60% of MRF revenues.
3. Because newspaper is a negative sort material, the issue is not that newspaper has processing issues, but that other materials--if not processed correctly--cause issues for the paper.
4. Received a green dot if there were multiple markets and a red dot if there is only one market.

Energy Savings for Recycling⁵ (Million Btu/Ton of Material Recycled)

Materials	Net Energy Savings ⁶ (Postconsumer)
Aluminum cans	206.42
Cardboard	15.42
Glass	2.13
Mixed paper	22.94
Newspaper	16.49
Plastic - HDPE	50.9
Plastic - PET	52.83
Steel cans	19.97

5. When compared to landfilling
 6. Includes process and transportation energy inputs
- Source: U.S. EPA 2006

KEY ● Not An Issue ● Minor Issue ● Major Issue ☒ N/A