



ISRI

Voice of the Recycling Industry™

**PERCEPTIONS OF PAPER MILL PE
BUYERS OF MIXED WASTE
PROCESSING FACILITIES**

WHO IS THE PROJECT TEAM

RRS has been a leader in waste recovery infrastructure development and recycling program design since its modern inception in the mid-1980s. The approach incorporates a rigorous strategic planning process along with our proven approaches for developing a comprehensive understanding of the entire waste management system, including curbside collection, recyclable processing technologies, public education and customer service and end market development.

Our Project Team incorporated a rigorous survey process along with our proven approaches for developing a comprehensive understanding of the entire waste and recycling management system through stakeholder interviews and program evaluation and analysis, to achieve our client's desired goals to evaluate the implications of mixed waste processing to the overall quality and quantity of recovered material. We bring a variety of experienced senior people to this project effort.

This executive summary has been prepared to present the findings of the Mixed Waste Processing & Desirability online survey (“survey”) administered during the second and third week of January 2016, and phone interviews conducted with a selection of different recovered paper industry participants during the same timeframe.

PROJECT BACKGROUND

For the past several years, there has been much discussion and debate about the quality of recovered fiber being generated by mixed waste processing facilities. This recovered fiber has generally been deemed unusable by pulp and paper mills as it is mixed with organic and putrescible waste which can cause the recovered fiber to absorb odors and other contaminants.

As several municipalities across the United States have, or continue to, make decisions of whether to commission a mixed waste processing facility, ISRI’s Paper Division thought it appropriate to gauge the *thoughts, opinions and perceptions* of representatives that are responsible for buying and selling *recovered fiber* for paper mills throughout the United States and for export to locations throughout the world.

As this has been a topic of great discussion over the past several years, paper mill representatives may have been influenced by this debate which may have helped them develop an opinion of the material. The survey was designed to gauge the perceptions of these representatives. As such, it surveys their opinions and thoughts regardless if they have actual experience in handling the material.

This survey should not be used as the sole data point to draw conclusions about mixed waste processing facilities or the development of any policy on the subject. When used in conjunction with literature conducted by other stakeholders, the survey can add substantial information to the topic of quality of *recovered fiber* being generated at a mixed waste processing facility. Additionally, this survey only asks opinions of representatives regarding the recovered fiber generated at a mixed waste processing facility. *It does not ask their opinions regarding the other types of materials that may be generated such as metals and plastics. As such, this survey should not be construed as taking a position as to the quality of those materials.*

The survey defined a mixed waste processing facility as:

“Mixed Waste Processing facilities (MWP) that recycle are also known as Dirty MRF’s, integrated waste processing facilities, and MSW front-end processing systems, etc. They are used to recover residential paper from ONE BIN collection systems, where paper, plastics, and metals are mixed with organic materials (food, etc.), liquids, inerts, and other municipal solid waste (MSW), and most often compressed together before delivery. There at the MWP, the material is sorted for recyclables.”

ONLINE SURVEY METHODOLOGY

The online survey was developed by RRS at the direction of, and in conjunction with, ISRI staff and members during early December 2015; to be completed for delivery to ISRI for its discretionary use in the marketplace in early 2016. The survey incorporated seven main questions, with two of the questions having sub-questions that depended on the first, “Yes/No” response. The survey document is attached at the end of this memo.

On January 11, 2016, the survey was distributed to a database of 153 potential respondents, identified by ISRI as participants in the recovered paper marketplace. The survey was delivered to potential respondents branded with the ISRI logo and an invitation signed by ISRI President Robin Wiener. A first reminder was sent to the same respondents on January 14, 2016, in an effort to increase the response rate. A final reminder was sent to the same addresses on January 19, 2016 to encourage the remaining willing participants to respond.

With the initial survey request and two reminders the overall number of responses was 41, for an overall response rate of 29%, a rate that the survey company reported was outstanding, far beyond usual rates. The benefits of additional follow-up, by email reminder and/or phone call were considered. The statistical outcomes for the survey results are as follows:

1. 95% confidence that the results are +/- 12% from the total population. This Margin of Error (MOE) drops to 11% with 50 responses and would require 110 responses to go as low as 5% MOE.
2. With such a small and targeted population, the survey company is typically comfortable with a 12% MOE.
3. It is not possible to ask the same questions by telephone of potential respondents without distorting the survey methodology and the results (making the two sets of result incompatible with one another).

ONLINE SURVEY RESULTS

Key findings from the survey focus on four areas:

1. **Paper Purchasing Behavior** – A great majority of the respondents are responsible for purchasing recovered paper of all types. Most purchase for 1-3 domestic mills in a tonnage range of 100,000 to 250,000 tons per year.
2. **Prevalence of Paper from Mixed Waste Processing Facilities** – 25% of the respondents currently purchase paper from Mixed Waste Processing Facilities. The amount they purchase is less than 10% of all paper tonnage prepared by the respondents.
3. **Paper Quality** – 70% of the respondents purchasing mixed waste paper find its quality to be worse than other recovered paper. 90% have had to downgrade or reject the paper from Mixed Waste Processing Facilities.

Figure 1 - Volumes Procured

Most purchase for 1-3 domestic mills and the total tonnage of paper procured is somewhere between 100,000 and 250,000 tons per year for the plurality.

Thinking only about domestic mills, how many mills do you purchase post-consumer recovered paper for?



On an annualized basis, in total, how many tons of post-consumer recovered paper are you responsible for procuring for either domestic mills, or to be exported to off-shore mills?

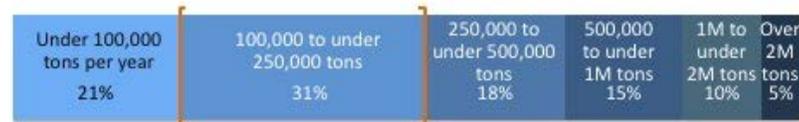


Figure 1 – Volumes Procured expresses the profile of the respondents to the ISRI Survey. Survey respondents ranged from the most numerous (53%) responsible only for the procurement activities at mill groups, ranging in size from one to three locations, to a much smaller number (18%) of survey respondents that are in positions where they purchase recycled paper for 7 or more facilities. Volumes purchased data correlates to the number of facilities, with 52% of the respondents purchasing less than 250,000 tpy of recycled material annually. Increasingly smaller fractions of the buyers purchase in the higher volume ranges between 250,000 and more than 2.0 million tons of material per year.

Figure 2 - MRF Usage

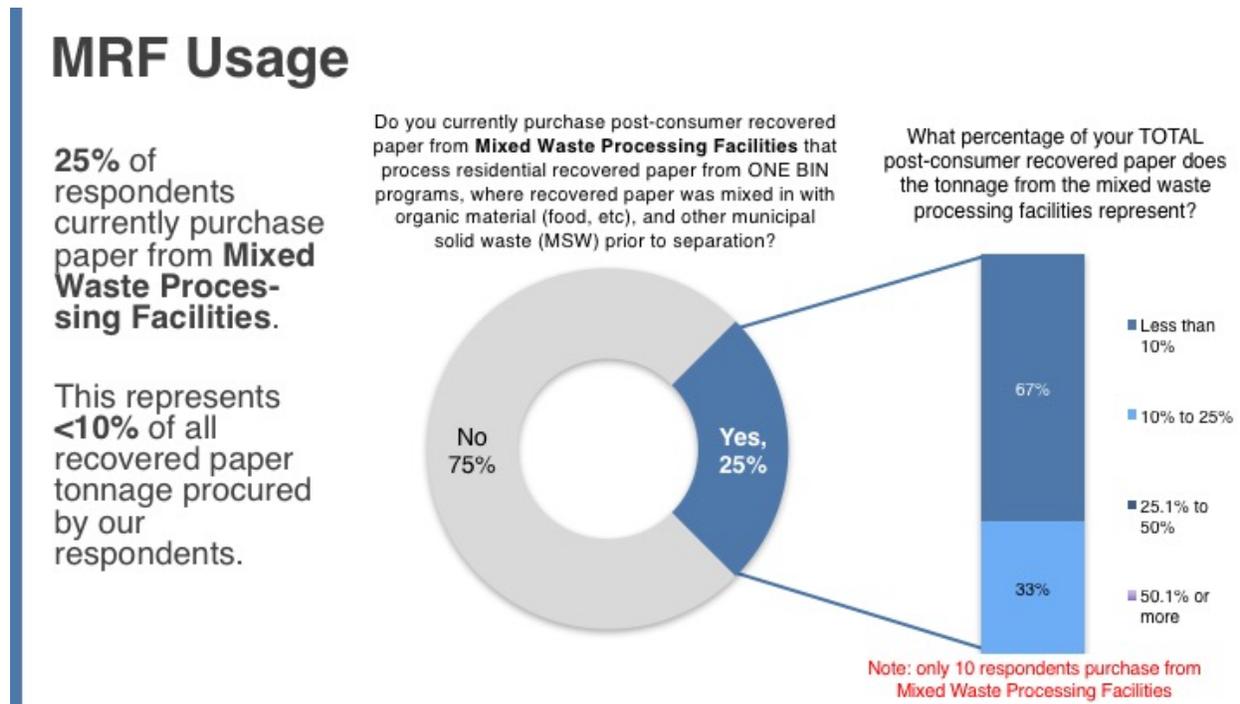


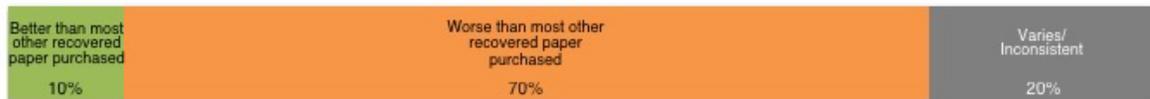
Figure 2 – MRF Usage shows that only a quarter (10 total buyers) of the overall respondents currently purchase material from mixed waste processing facilities. Of these ten buyers the vast majority (67%) purchase less than 10% of their furnish from this source. The rest capture between 10 and 25% of their total furnish. No one purchases a majority of their material from this source. Overall, less than 10% of all recovered paper tonnage purchased by the survey respondents comes from mixed waste processing sources.

Figure 3 - Perceptions among MRF Purchasers

Perceptions among MRF Purchasers

A great majority of purchasers (**70%**) find the quality to be worse than most other recovered paper. In fact, **90%** have had to downgrade or reject the paper from Mixed Waste Processing facilities.

How do you or your mills perceive the quality of the post-consumer recovered paper from the mixed waste processing facilities?



Have the loads you have received from mixed waste processing facilities been rejected or downgraded from your company?



Note: only 10 respondents purchase from Mixed Waste Processing Facilities

Of the purchasers buying mixed waste processing derived paper, 70% of them find the quality to be worse than paper derived from other means of recycling. In addition, 90% of the respondents report that they have had to downgrade and/or reject paper from mixed waste processing facilities. Few of the respondents seemed to have good things to say about mixed paper produced by mixed waste processing facilities.

Table 1 - Rationale for not purchasing MWP derived paper from MRFs.

Rank	Reason
1	Contamination
2	Odor
3	Low quality
4	Higher than acceptable percentages of prohibitives and outthrows
5	Internal quality standards prevent us from purchasing
6	Using recovered paper from Mixed Waste Processing Facilities is too risky
7	Excessive moisture
8	Quality of the raw materials will not meet the needs of my customers
9	Regulatory Concerns (e.g. FDA, solid waste hauling permits)
10	Green Fence (only answer this is you buy for Asian mills)
11	Lack of availability in my geographic area

Survey respondents provided numerous reasons for not purchasing paper derived from mixed processing facilities. While there was no particularly dominant reason, a wide range of responses mentioned quality related issues (top five) as being among the biggest difficulties that they perceived.

MAKEUP OF SURVEY RESPONENTS

A total of 41 viable responses were received to the survey instrument. The organization, individual names and email addresses of these 41 were pulled from an ISRI database. The Project Team categorized these organizations in one of four groups: Paper Manufacturer, Packaging Manufacturer, Commodity Broker, and MRF Operator. Table 3 shows how the responses break down into these categories. All respondents were involved in the procurement of recycled paper into their respective organization.

Table 3 – Categorization of Mixed Waste Processing Paper Survey

Paper Manufacturer	Packaging Manufacturer	Commodity Broker	MRF Operator	Total
32	3	4	2	41

In reality, the correct assignment of most survey respondents is an imprecise exercise. Respondents, almost without exception, wear more than one procurement hat. For instance, it is common among paper manufacturers who procure waste paper for their mills to also actively broker materials for profitable trading to offset G&A costs, after internal demands are met. They also often broker non-paper bales. This is also true for some MRF operators and packaging manufacturers with internal mills, who have brokering operations of their own. In this case, the Project Team assigned categories on the respondents primary responsibilities in the recycled fiber marketplace. The paper manufacturer/broker/procurement segment, those tied to a mill, was the largest potential class of respondents and actual respondents, compared to all of the other categories.

ISRI MIXED WASTE PROCESSING PAPER SURVEY

Please take this Survey and be heard about the subject of Mixed Waste Processing Facilities. ISRI is reaching out to you and your company for your expertise and reputation, to better understand the meaning of the recent flurry of activity and development of these facilities, and what they mean to the future of the recycling industry.

Confidentiality: All responses to this survey will be kept anonymous, unless you explicitly want your name to be revealed (see question #7). The consulting project team will maintain the responses and will not disclose any information pertaining to individual surveys unless respondents give explicit, written, permission. A summary of responses will be created and delivered to ISRI as the final product. The survey form itself provides an opportunity to waive confidentiality, if desired. There is also an email address to answer any questions and concerns below. Please use it at any time during the process.

Mixed Waste Processing Facilities

Mixed Waste Processing facilities (MWP) that recycle are also known as Dirty MRF's, integrated waste processing facilities, and MSW front-end processing systems, etc. They are used to recover residential paper from ONE BIN collection systems, where paper, plastics and metals, are mixed with organic material (food, etc.), liquids, inerts, and other municipal solid waste (MSW), and most often compressed together before delivery. There at the MWP, the material is sorted for recyclables. Your opinion is sought on the following topics:

<u>Q#</u>	<u>Question</u>	<u>Response</u>
1.	Are you responsible for procuring POST-CONSUMER recovered paper, either for a domestic paper mill using it as feedstock, or for the purpose of exporting it to paper mills outside of North America?	<input type="radio"/> Yes <input type="radio"/> No
1a.	If "Yes"	<input type="radio"/> For Domestic Mill Feedstock <input type="radio"/> For Export Outside of North America <input type="radio"/> I source for both Domestic and Export
1b.	If "Yes", which grades of post-consumer recovered paper do you purchase? (check all that apply).	<input type="radio"/> OCC <input type="radio"/> Mixed Paper <input type="radio"/> ONP <input type="radio"/> SOP <input type="radio"/> Other Grades, please specify: _____ <input type="radio"/> All of the above
2.	If you purchase for domestic mills, how many mills do you purchase post-consumer recovered paper for?	<input type="radio"/> 1 to 3 <input type="radio"/> 4 to 6 <input type="radio"/> 7 or more

3.	On an annualized basis, in total, how many tons of post-consumer recovered paper are you responsible for procuring for either domestic mills, or to be exported to off-shore mills?	<input type="radio"/> Under 100,000 tons per year <input type="radio"/> Under 100,000 to 250,000 tons per year <input type="radio"/> 250,000 to 500,000 tons per year <input type="radio"/> 500,000 to 1 million tons per year <input type="radio"/> 1 million to 2 million tons per year <input type="radio"/> Over 2 million tons per year
4.	Do you currently purchase post-consumer recovered paper from dirty MRFs that process residential recovered paper from ONE BIN programs, where recovered paper was mixed in with organic material (food, etc.), and other municipal solid waste (MSW) prior to separation?	<input type="radio"/> Yes <input type="radio"/> No
4a.	If “yes” to question #4, (you currently DO buy recovered paper from dirty MRFs/Mixed Waste processing facilities), what percentage of your TOTAL post-consumer recovered paper does the tonnage from the dirty MRFs represent?	<input type="radio"/> Less than 10% <input type="radio"/> 10.1 to 25% <input type="radio"/> 25.1 to 50% <input type="radio"/> 50.1% or more
4b.	If “yes” to question #4, (you currently DO buy recovered paper from dirty MRFs/Mixed Waste processing facilities), how do you or your mills perceive the quality of the post-consumer recovered paper from the dirty MRFs?	<input type="radio"/> Better than most other recovered paper purchased <input type="radio"/> Equal to most other recovered paper purchased <input type="radio"/> Worse than most other recovered paper purchased <input type="radio"/> Varies/inconsistent
4c.	If “yes” to question #4, (you currently DO buy recovered paper from dirty MRFs/Mixed Waste processing facilities), are the loads you have received from dirty MRFs been rejected or downgraded from your company?	<input type="radio"/> Yes, we reject or downgrade dirty MRF recovered paper at a higher rate than recovered paper from regular MRFs <input type="radio"/> No, our rejections and downgrades of dirty MRF material is no higher, or even lower, than recovered paper from regular MRFs
4d.	If “no” to question #4, (you currently DO NOT buy recovered paper from dirty MRFs/Mixed Waste processing facilities), what prevents you from purchasing post-consumer	(Check all that apply): <input type="radio"/> Low quality <input type="radio"/> Contamination <input type="radio"/> Odor <input type="radio"/> Excessive moisture

	<p>recovered paper from the dirty MRFs?</p>	<p> <input type="radio"/> Higher than acceptable percentages of prohibitives and outthrows <input type="radio"/> Internal quality standards prevent us from purchasing <input type="radio"/> Using recovered paper from dirty MRFs is too risky <input type="radio"/> Quality of the raw materials will not meet the needs of my customers <input type="radio"/> Regulatory Concerns (e.g. FDA, solid waste hauling permits) <input type="radio"/> Lack of availability in my geographic area <input type="radio"/> Green Fence (only answer this is you buy for Asian mills) <input type="radio"/> All of the above <input type="radio"/> Other (comment please): _____ _____ _____ </p>
<p>5.</p>	<p>In Europe, the paper industry is represented by an organization called CEPI. CEPI has instituted an industry standard policy and recommendations for paper mills, which states: "Paper recovered from municipal solid waste programs is NOT fit do you used in paper mills as recovered paper." Do you think that the Paper Stock Industries specifications used by USA paper mills to define paper grades, should contain a similar statement as part of its paper specifications?</p>	<p> <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> No opinion </p>
<p>6.</p>	<p>Please add any comments about your feelings, or your company's policy regarding post-consumer recovered paper processed at dirty MRFs.</p>	<p> Comment #1: _____ _____ _____ _____ _____ Comment #2: _____ </p>

		<hr/> <hr/> <hr/> <p>Comment #3: _____</p> <hr/> <hr/> <hr/> <p>Comment #4: _____</p> <hr/> <hr/> <hr/> <hr/> <hr/>
7.	Would you like to reveal your name or your company's name? Otherwise, all responses will be anonymous and held in strict confidence.	If yes, name: _____ Company: _____