The Relationship Between Source Separated Recyclables and Recyclables Recovered From Mixed Waste MRFs and its Affect on Revenues

Presented by Scott J Horne, Counselor, Institute of Scrap Recycling Industries at:

Mixed Waste MRFs: Both Sides Now

a SWANA New York State Chapter Meeting

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ISRI: Voice of the Recycling Industry

1,600+ Member companies
7,000+ Recycling facilities worldwide
34 Countries
Scrap Recycling Industry in the U.S.

$105 Billion Industry

149,000 Direct Employees

472,000 Direct + Indirect

+135,000,000 Tons processed annually

75 million tons ferrous
5.4 million tons aluminum
2 million tons copper
46 million tons paper
Recycling Industry Segments

Volume of Material Annually Processed By Scrap Recycling Industry: 130 – 140 million mt


Part A

Part B

Part C: MSW Recovery of Yard Trimmings, Wood, Foods, Other: ~23 million mt

Recovery of All Municipal Solid Waste, 2012: ~78 million mt

Not to scale
Scrap Has Become a Global Industry

Part of the Global Industry

40
Total exported from U.S. (million metric tons)

$21B
Value of U.S. materials exported

160
Destination countries to which recyclables were sold

- **The U.S. is the largest exporter of scrap commodities in the world.**

- **With between 30% to 40% of scrap processed in US destined for export each year, the health of the US recycling industry is directly tied to the health of the global economy.**

- **Explosive Chinese growth was the main driver of commodity and scrap demand and the so-called “commodities super-cycle.” But the recent slowdown in China’s economy has had similarly outsized impacts.**
The Relationship between Quality & Price

- Industrial consumers of recyclables as raw material feedstock depend upon high quality infeed to manufacture new, high quality basic materials.
- Dependent upon the finished product to be made from those new basic materials, industrial consumers may be able to use some amount of lower grade recyclables.
- However, recycled materials that have been commingled with solid waste during collection and processing present a whole host of manufacturing concerns for industrial consumers.
The Relationship between Quality & Price

• Dual Stream Collection of Recyclables
  – Best opportunity for purer/higher grade materials

• Single Stream Collection of Recyclables
  – Creates quality problems that affect new basic materials and also create excessive downtime of machinery

• One-bin (one-can) Collection of Recyclables commingled with putrescible and organic solid wastes
  – Recyclables commingled with liquid waste, organics, human and animal fecal matter, hazwaste disposed (in properly or not) by homeowners create huge quality problems for industrial consumers
The Relationship between Quality & Price

• Current state of technology has advanced to a level that allows for excellent sortation of recyclable materials
• Current state of technology cannot adequately remove or segregate solid wastes from recyclables to an extent that the recyclables can be used in lieu of high quality recycled materials
Guidelines for Paper Stock: PS-2016—Domestic Transactions

Preamble
These standards and practices apply to paper stock for repulp only and are for use in the United States, Canada, and Mexico. Transactions may be modified by mutual agreement between Buyer and Seller.

Basic to the Success of Any Buyer-Seller Relationship Is An Atmosphere of “Good Faith.” In keeping with this, the following principles have been established:

1. Seller must use due diligence to ascertain that shipments consist of properly packed paper stock and that shipments are made during the period specified.
2. Any disputes, cancellations and/or rebates by the Buyer are counter to acceptable good trade practices.
3. Seller shall provide the quality of paper stock agreed upon but shall not be responsible for the use of the paper stock or of the manufactured product.

I. The Purchase Agreement
Each transaction covering the purchase or sale of paper stock shall be confirmed in writing and include agreement on the following items:

1. Quantity
Where possible, the quantity shall always be specified in terms of a definite number of short tons of 2,000 lbs. each or metric tonnes of 2,204.6 pounds each.
   a. When the quantity is specified in tons or tonnes, the buyer shall be considered completed when aggregate shipments are 95% under or over the quantity ordered.
   b. When the quantity is specified in carloads or truckloads, a “load” shall be defined as a truck, trailer, or railcar loaded in accordance with the ISRI/AF&PA Shipping Guide.
   c. The Buyer and Seller may establish minimum carload and/or truckload weights.

2. Grades
Where possible, each grade purchased shall be specified in accordance with the grade as defined in SECTION VI herein.

3. Packing
Unit type, i.e., bales, skids, rolls, pallets, boxes, securely tied bundles or loose, should be specified.

4. Pricing and Terms
The agreed price and payment terms shall be clearly stated.

5. Shipping Terms
Shipping terms shall be indicated with the use of phrases such as “F.O.B. shipping point” or “F.O.B. delivered.”

6. Shipping Instructions
Shipping instructions should clearly specify shipping schedule, route, carrier and destination.

7. Shipping Period
The ship period shall be understood to be within the same calendar month of the date of the order unless otherwise specified.

II. Fulfillment by the Seller
The practice of the Seller shall be in accordance with the following:

1. Acceptance
All orders shall be confirmed in writing.

2. Grading
Paper stock sold under the grade names appearing in SECTION VI shall conform to those grading definitions.

3. Baling
Each bale must be secured with a sufficient number of bale ties drawn tight to ensure a satisfactory delivery.

4. Tare
If agreed to by the Buyer, sides and header are to be used to make a satisfactory delivery of the bales but must not be excessive. The weight of skids, Gaylord boxes and other similar materials shall be deducted from the gross invoice weight.

5. Loading
Paper stock shall be loaded as follows:
   a. Before they are loaded, railroad cars and trucks shall be free from objectionable materials and odor, and shall have sound floors and doors.
   b. All loads should consist entirely of one grade of paper stock unless otherwise agreed to. When two or more grades are included in the same load, units of each grade should be kept together in a separate part of the railcar or truck.
   c. Paper stock must be loaded in a manner that will minimize shifting and breakage. Excessive breakage due to improper loading can be caused by rejection.
   d. Paper stock shall be loaded in accordance with industry-safety best practices.

6. Shipping Notice/Bill of Lading
Shipping by Truck
A bill of lading or shipping notice shall accompany each shipment to the Buyer and shall include the following:
   a. Date of shipment
   b. Release number (if applicable)
Paper stock Domestic Transactions

INSTITUTE OF SCRAP RECYCLING INDUSTRIES, INC.

II. Acceptable Loads (i.e. quality of paper stock, weight, bale integrity, moisture, order quantities, etc.)

- If the shipment appears to be in accordance with the order, the shipping notice and other parameters as established between the Buyer and the Seller, the Buyer shall proceed with the unloading and shall provide the Seller with the receiving weights within three business days of unloading.

II. Unsuitable Loads (i.e. quality of paper stock, weight, bale integrity, moisture, order quantities, etc.)

- If the shipment does not appear to be in accordance with the order, the shipping notice or any other parameter as established between the Buyer and the Seller, the Buyer shall immediately notify the Seller.
- The Buyer shall set aside any portion of the shipment that is controversial and take reasonable care to protect that paper stock from any external deterioration or contamination until the final disposition of that shipment is determined.
- If the Buyer, at any time within 21 calendar days after receipt of a shipment, finds objectionable materials otherwise not visible, the Buyer shall have the right to downgrade or reject the paper stock and shall immediately notify the Seller. The Seller will then determine the final disposition of the shipment.
- In the event of a rejection, the Buyer shall be responsible for any paper stock used by the Buyer, and the attendant cost, other than such quantity as may be considered reasonable for laboratory sampling or testing purposes.

IV. Miscellaneous Practices

1. Ownership

a. When the shipment is purchased “f.o.b. shipping point” and is in accordance with the agreement covering the transaction, it becomes the property of the Buyer when loaded.

b. When the shipment is purchased on a “deliverer” basis and is in accordance with the agreement covering the transaction, it remains the property of the Seller until it is delivered to the Buyer.

c. If the shipment is purchased on an “f.o.b. shipping point-specified freight allowed” basis and is in accordance with the agreement covering the transaction, it becomes the property of the Buyer when loaded on the transportation vehicle.

2. Carrier Selection

a. F.O.B. Shipping Point. Selection of the carrier is at the discretion of the Buyer unless otherwise agreed.

b. F.O.B. Delivered. Selection of the carrier is at the discretion of the Seller unless otherwise agreed.
4. Moisture content
All paper must be packed air dry.

Where excess moisture is present in the shipment, the Buyer has the right to request an adjustment and if a settlement cannot be reached, the Buyer has the right to reject the shipment.

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V. Arbitration
In the event of a dispute where agreement cannot be reached between Buyer and Seller, the dispute may be submitted to ISRI arbitration as long as one of the parties is a member of the association. Refer to ISRI Arbitration Services section of this document for further information.

VI. Grade Definitions
The definitions which follow describe grades as they should be sorted and packed. CONSIDERATION SHOULD BE GIVEN TO THE FACT THAT PAPER STOCK AS SUCH IS A SECONDARY MATERIAL PRODUCED MANUALLY AND MAY NOT BE TECHNICALLY PERFECT. Definitions may not specifically address all types of processes used in the manufacture or recycling of paper products. Specific requirements should be discussed between Buyer and Seller during negotiations.

Outthrows
The term "Outthrows" as used throughout this section is defined as "all paper that is so manufactured or treated or size in such a form as to be unsuitable for consumption as the grades specified."

Prohibitive Materials
The term "Prohibitive Materials" as used throughout this section is defined as:

a. Any materials which by their presence in a package of paper stock, in excess of the amount allowed, will make the pack unsuitable as the grade specified.

b. Any materials that may be damaging to equipment.

c. All sorted recovered paper stock must be free of food debris, medical or hazardous waste, and poisonous or otherwise harmful substances or liquids.

d. Wax is a Prohibitive unless accepted and pre-approved.

e. be classified as an "Outthrow" in one grade

f. Prohibitive Materials in another grade. Certain

g. "UNSUITABLE in Mixed Paper and is

h. Stabilized Papers

i. "Acceptable Papers" as used throughout

j. "all other papers that are deemed

k. "all other papers that are deemed

l. "in that buyer's pack up

m. Terms

n. Glossary of paper stock terms is located in the Domestic Transactions section. The purified list of terms is to help the user better understand specific grade definitions contained within this Circular.

(1) Residential Mixed Paper
Consists of a mixture of various qualities of paper not limited as to type of fiber content, normally generated from residential, multi-material collection programs. Prohibitive Materials may not exceed 2%
Outthrows plus prohibitives may not exceed 5%

(2) Soft Mixed Paper
Consists of a clean, soft paper containing less than 10% groundwood content. Prohibitive Materials may not exceed 3%
Outthrows plus prohibitives may not exceed 3%

(3) Hard Mixed Paper
Consists of a clean, soft paper containing less than 30% groundwood content. Prohibitive Materials may not exceed 2%
Outthrows plus prohibitives may not exceed 2%

(4) Board Cuttings
Consists of new cuttings of paperboard used in the manufacture of folding cartons, set-up boxes and similar board products. Prohibitive Materials may not exceed 2%
Outthrows plus prohibitives may not exceed 2%

(5) Mil Wrappers
Consists of paper used as inside wrap for rolls, bundles, or rolls of finished paper. Prohibitive Materials may not exceed 2%
Outthrows plus prohibitives may not exceed 2%

(6) Old Newspaper
Consists of sorts of newspapers and other acceptable papers as typically generated by voluntary collection and curbside collection programs. Prohibitive Materials may not exceed 2%
Outthrows plus prohibitives may not exceed 4%
Other acceptable papers may not exceed 30%
(8) Special News, De-ink Quality (#8 ONP)
Consists of sorted, fresh newspapers, not sunburned, and other acceptable papers. This grade is to be relatively free from magazines and contain not more than the normal percentage of rotogravure and colored sections.

Prohibitive Materials may not exceed 1%
Outthrows plus prohibitives may not exceed 2%
Other acceptable papers may not exceed 10%
(26) Publication Ranks (CDR)
Consists of unprinted cuttings or sheets of white coated or filled groundwood content paper.
Prohbitive Materials
None permitted
Outflows plus prohibitive may not exceed 1%

(27) Coated Flyleaf Shavings
Consists of tightly printed trim from magazines, catalogs, and similar printed matter, not limited with respect to groundwood, uncoated or coated stock. The bind of cover, inner card stock, and beater-dried paper may not exceed 2%.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1%

(28) Coated Soft White Shavings (SWSh)
Consists of unprinted, coated, and uncoated shavings and sheets of white groundwood-free printing paper. May contain a small percentage of groundwood.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1%

(29) Grade not currently in use

(30) Hard White Shavings (HWS)
Consists of shavings or sheets of unprinted, uncoated white groundwood-free paper.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1% of %

(31) Hard White Envelope Cuttings (HMEC)
Consists of groundwood-free cuttings, shavings, or sheets of unprinted, uncoated, and uncoated white envelope paper.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1% of %

(32) Grade not currently in use

(33) New Colored Envelope Cuttings
Consists of groundwood-free cuttings, shavings, or sheets of unprinted, uncoated bleachable colored envelope paper.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 2%

(34) Grade not currently in use

(35) Semi Bleached Cuttings
Consists of sheet and cuttings of unprinted, uncoated, groundwood-free paper such as file folder stock, uncoated milk carton stock, or manilla.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 2%

(36) Unsorted Office Paper (UOP)
Consists of printed or unprinted paper typically generated in an office environment, that may include a document destruction process. This grade may contain white, colored, coated and uncoated papers, manilla and pastel colored file folders.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1% of %

(37) Sorted Office Paper (SOP)
Consists of paper, as typically generated by offices, containing primarily white and colored groundwood-free paper.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 5%

(38) Grade not currently in use

(39) Manifold Colored Ledger (MCL)
Consists of sheet, shavings, and cuttings of industrially generated printed or unprinted colored or white groundwood-free paper. All stock must be uncoated and free of nonimpact printing. A percentage of carbonless paper is allowable.
Prohibitve Materials
May not exceed 1% of %
Outflows plus prohibitive may not exceed 2%

(40) Sorted White Ledger (SWL)
Consists of uncoated, printed or unprinted sheets, shavings, quillotted books, and cuttings of white groundwood-free ledger, bond, writing, and other paper which has similar fiber and filler content.
Prohibitve Materials
May not exceed 1% of %
Outflows plus prohibitive may not exceed 2%

(41) Manifold White Ledger (MWL)
Consists of sheet, shavings, and cuttings of industrially generated printed or unprinted white groundwood-free paper. All stock must be uncoated.
Prohibitve Materials
May not exceed 1% of %
Outflows plus prohibitive may not exceed 2%

(42) Grade no longer in use

(43) Coated Book Stock (CBS)
Consists of coated groundwood-free paper, printed or unprinted in sheets, shavings, quillotted books and cuttings. A reasonable percentage of paper containing fine groundwood may be included.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 2%

(44) Coated Groundwood Sections (CGS)
Consists of printed, coated groundwood paper in sheets, sections, shavings or quillotted books. This grade may not include news quality groundwood paper.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 2%

(45) Lightly Printed Bleached Board Cuttings
Consists of groundwood-free printed bleached board cuttings, free from misprint sheets, cartons, wax greaseproof lamination, metallic and ink, adhesives or coatings that are insoluble.
Prohibitve Materials
May not exceed 1% of %
Outflows plus prohibitive may not exceed 2%

(46) Printed Bleached Board
Consists of groundwood-free printed bleached board cuttings, sheets or rolls, free from wax, greaseproof lamination and adhesives or coatings that are insoluble.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1%

(47) Unprinted Bleached Board
Consists of groundwood-free unprinted, unbleached bleached board cuttings, sheets or rolls, free from wax, greaseproof lamination and adhesives or coatings that are insoluble.
Prohibitve Materials
None permitted
Outflows plus prohibitive may not exceed 1%
(48) 81 Bleached Cup Stock (81 Cup)
Consists of unrected cuttings or sheets of coated or uncoated cup base stock. Cuttings with light blad may be included. Must be free of wax, poly, and other coatings that are insoluble.
Prohibitive Materials None permitted
Outmixes plus prohibitive may not exceed 1/6 of 1%

(49) 82 Printed Bleached Cup Stock (82 Cup)
Consists of pre-cut, unrected formed cups, cup lid, cut, and reprints of sheets of coated or uncoated cup base stock. Glue must be water soluble. Must be free of wax, poly, and other coatings that are insoluble.
Prohibitive Materials None permitted
Outmixes plus prohibitive may not exceed 1%

(50) Unprinted Bleached Plate Stock
Consists of groundwood-free bleached coated or uncoated, unrected, and unprinted plate cuttings and sheets.
Prohibitive Materials None permitted
Outmixes plus prohibitive may not exceed 1/6 of 1%

(51) Printed Bleached Plate Stock
Consists of groundwood-free bleached coated or uncoated, unrected, and unprinted plate cuttings and sheets. Must be free of coatings or ink that are insoluble.
Prohibitive Materials None permitted
Outmixes plus prohibitive may not exceed 1%

(52) Aseptic Packaging and Gable-Top Cartons
Consists of liquid packaging board containers including amyl, used, polyethylene/PVC coated, printed, one-side aseptic, and gable-top cartons containing less than 70% bleached chemical fiber and may contain up to 1% aluminum foil and 2.4% PE film.
Prohibitive Materials May not exceed 2%
Outmixes plus prohibitive may not exceed 5%

Specialty Grades
The grades listed below are produced and traded in carload and truckload quantities throughout the United States, and because of certain characteristics (i.e., the presence of wet strength, polycoatings, plastic, foil, carbon paper, hot melt glue, are not included in the regular grades of paper stock. However, it is recognized that many mills have special equipment and are able to divert large quantities of these stocks. Since many paper mills throughout the world do use these specialty grades, they are being listed with appropriate grade numbers for easy reference.

The Paper Stock Industry Chapter of ISRI is not establishing specific specifications, which would refer to such factors as the type of wet strength agent used, the percentage of wax, the amount of polycoating, whether it is on top of or under the printing, etc. The specification for each grade should be determined between buyer and seller, and it is recommended that purchase be made based on sample.

These specialty grades are as follows:
1-5 White Waxed Cup Cuttings
2-5 Printed Waxed Cup Cuttings
3-6 Polycoated Cup Stock
4-5 Polycoated Bleached Kraft-Unprinted
5-5 Polycoated Bleached Kraft-Printed
6-5 Polycoated Milk Carton Stock
7-5 Polycoated Diaper Stock
8-5 Polycoated Board Cuttings
9-5 (This Grade No Longer in Use)
10-5 Printed and/or Unprinted Bleached
11-5 Sulphate Containing Foil
12-5 Wax Coated Cuttings
13-5 Wet Strength Corrugated Cuttings
14-5 (This Number Not Currently in Use)
15-5 Beer Can Scrap
16-5 Contaminated Bag Scrap
17-5 Insoluble Glazed Free Sheet Paper and/or Board (IG)
17-5 White Wet Strength Scrap
18-5 Brown Wet Strength Scrap
19-5 Printed and/or Colored Wet Strength Scrap
20-5 File Stock
21-5 (This Number Not Currently in Use)
22-5 Rigid White
23-5 Flexible Sheeting Containing Hot Melt Glue
24-5 (This Number Not Currently in Use)
25-5 Books with Covers
26-5 (This Number Not Currently in Use)
27-5 (This Number Not Currently in Use)
28-5 (This Number Not Currently in Use)
29-5 (This Number Not Currently in Use)
30-5 Plastic Windowed Envelopes
31-5 Textile Boxes
32-5 Printed TMP
33-5 Unprinted TMP
34-5 Manila Tabulating Cards
35-5 Sorted Colored Lenser
36-5 Computer Printout (CDP)
Glossary of Paper Stock Terms for Both Domestic and Export Transactions

The following is a glossary of paper stock terms used within Section VI, Grade Definitions, of the Guidelines for Paper Stock for both Domestic and Export Transactions. These terms are not intended as a dictionary, but as a guide to help the Circular user better understand specific grade definitions as used in the recovered paper industry.

**ADHESIVES:** Bonding substances that are non-water soluble and are considered contaminants in pulp, paper, and board grades.

**BEATER-DYED:** Paper dyed or colored during the paper manufacturing process.

**BLEACHED:** Paper that has been whitened by chemicals.

**BOARDS:** Paperboard .005 inch or thicker.

**BOGUS:** Paper of inferior quality to a standard grade.

**BOXBOARD:** Paperboard made from a variety of recovered fibers having sufficient folding properties and thickness to be used to manufacture folding or set up boxes.

**CHEMICAL WOOD-FIBER PULP:** Generic for cellulose fibers isolated and purified by a chemical digestive process.

**CHIPBOARD:** Uncoated, non-folding paperboard made from a variety of recovered fibers having sufficient strength and structural properties to be used to manufacture game boards, book covers, notepads, gaming and similar products.

**COATINGS:** A layer of adhesives, dyes, varnish, or any barrier applied to paper.

**CONTAINERBOARD:** Leverboard and corrugated medium used to manufacture shipping containers.

**CORES:** Paper tubes on which rolls of paper may be wound for shipment.

**CORRUGATED CONTAINERS:** Shipping containers made with kraft paper liners and corrugated medium.

**CUTTING:** Paper stock by-product of paper converting operations.

**FILLER/FILLED:** Denotes papers that have minerals (clays or other pigments) added for improving quality or color.

**FLY LEAF/SHAVING:** Trim scrap from printing operations.

**FREESHEET:** Paper that contains less than 10% groundwood fiber (synonym: groundwood-free).

**GROUNDWOOD:** Paper made with fibers produced without chemical pulping.

**GUT:** Metallic (gildor silver) ink used in printing.

**HOGGED:** Paper that has been mechanically torn or ripped to reduce its original size.

**HOT-MELT:** A type of glue or adhesive applied while hot/warm. Considered a contaminant in some grades.

**IMPACT (PRINTING):** A paper printing process that physically applies ink to the paper surface.

**INSOULUBLE GLUES:** Glues that won’t dissolve (break down) in water.

**JUTE:** Strong, long-fibered pulp made from hemp.

**KRAFT:** Paper made from sulfate pulp (synonym: brown and strong).

**LAMINATED:** Paper manufactured by fusing one or more layers of paper together.

**LINERBOARD:** Outside layer of a combination board used to manufacture corrugated shipping containers.

**MANIFOLD:** May denote continuous forms or bondsheet forms with several parts (may be interleaved with carbon paper or be carbonless paper).

**MEDIUM:** The inner corrugated fluted material used to manufacture corrugated shipping containers.

**NON-IMPACT:** Papers having printing images formed without impact.

**OFF-SHORE/ASIAN:** Denotes corrugated shipping containers manufactured overseas and containing bogus liners or medium. (Color is somewhat lighter/more yellow than North American produced materials).

**PAPERBOARD:** Denotes paper products used for packaging (corrugated boxes, folding cartons, set-up boxes, etc.).

**ROTogravure:** A paper printing (flexography) process typically used to create the highest quality of smoothness on coated and uncoated paper. Excess quantities are considered an outthrow in grades 117, 118, and 119.

**SECTIONS:** Unbound, unused printed material with full ink coverage.

**SHAVINGS:** Trim from converting and bindery operations.

**SIGNATURE:** A section of book obtained by folding a single sheet of printing paper.

**SLABBED:** Type of paper stock normally generated by cutting rolls.

**SULFITE:** Papers and boards made from pulp made from an acid process.

**SULFURATE:** Papers and boards made from alkali processed pulp.

**TEST LINER:** Liners, which are the outer ply of any kind of paperboard, containing 100% recycled material.

**TMP:** Thermomechanical pulp.

**TREATED:** Paper manufactured with additives.

**TRIM:** Cuttings of paper stock generated at converting or bindery operations which normally have little or no printing.

**ULTRA-VIOLENT (UV) INKS/COUNTING:** Papers having ink or coatings dried by utilizing an ultraviolet radiation method. Considered a contaminant in some grades.

**WET STRENGTH:** Papers that have been treated with a moisture-resistant chemical that inhibits pulping.
Paper mills using recovered fiber as feedstock, reject the use of recovered paper sorted from “one-bin programs”

Paper mills using recovered fiber as feedstock, reject the use of recovered paper sorted from “one-bin programs”

Washington DC – The Institute of Scrap Recycling Industries (ISRI) today released the preliminary results of a survey of paper mill buyers in North America who are responsible for sourcing recovered fiber for their paper mills, about their thoughts and experiences with materials from mixed waste processing centers. Mixed waste processing centers advise their residential customers that there is no need to separate recyclables from solid waste (including organics) prior to collection, claiming that the valuable recyclables will be successfully separated in a Material Recovery Facility (MRF)-like environment post-collection. While there have been other recent studies about mixed waste processing centers, this is the first known study that exclusively solicited views of recovered paper buyers regarding their opinions and views about the ability to successfully use the recyclables sorted from such “one-bin” programs.

“We gained an incredible amount of learning from the survey participants regarding their experiences and preferences concerning the procurement of recovered fiber for their paper mills,” said Robin Wiener, president of ISRI. “In 2014, ISRI issued a policy statement discouraging the use of one-bin collection systems due to anecdotal statements and strong feelings from our member companies regarding the degradation in quality of recyclables recovered from such systems, but it wasn’t until the completion of this survey that we finally gleaned hard data from paper mills about the poor quality and contamination that they are actually experiencing, and the resulting impact on their purchasing and sourcing decisions. It is clear from this study that in communities where mixed-waste processing systems are put in place, the recycling of paper is significantly diminished, both in quality and quantity.”

Some as of highlights of the survey’s initial results are as follows:

- 82% of respondents purchase recovered fiber for between 1 to 6 mills, and 49% of respondents purchase material in the range of more than 100,000 tons of recovered fiber per year, but less than 500,000 tons of recovered fiber per year.
- Of the respondents, 25% purchase “some” material from dirty MRFs, but these mills purchase less than 10% of their required tonnage from mixed waste processing centers.
- Of those that purchase recovered fiber from mixed waste processing centers, 70% find the quality to be WORSE than most other recovered paper, and 90% of those mill buyers have had to DOWNGRADE or REJECT the paper from the mixed waste processing centers, at a higher rate than recovered paper from “regular” MRFs.
- 62%, or nearly 2/3 of those surveyed feel that ISRI specs should contain a statement as part of the paper specifications that states: “paper recovered from one-bin programs, separated in mixed-waste processing centers, is not fit for use in USA paper mills.”

Of the 75% of respondents who do not purchase recovered fiber from mixed waste processing centers, the top 8 reasons given, for NOT purchasing it, were as follows:

1. Contamination;
2. Odor;
3. Low Quality;
4. Exhibit a higher level of prohibitive and out-enthusiastic versus what is acceptable;
5. Internal quality standards prevent purchasing;
6. Too risky;
7. Excessive moisture; and
8. Quality will not meet the mills’ customers’ needs.

The survey was conducted confidentially via an online survey to North American paper mill buyers between January 11 and January 31, 2016. An independent, third-party research firm was utilized to conduct the survey. In order to achieve a high response rate, the survey was limited to less than 10 critical questions. All major mill groups using recovered paper in North America were invited to participate in the survey, both members, as well as non-members of ISRI.

To receive a full copy of the research report which will be released within the next few weeks, please email Mark Carpenter (MarkCarpenter@isri.org).

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About ISRI

The Institute of Scrap Recycling Industries, Inc. (ISRI) is the Voice of the Recycling Industry™. ISRI represents more than 1,600 companies in 21 chapters nationwide that process, broker and industrially consume scrap commodities, including metals, paper, plastics, glass, rubber, electronics and textiles. With headquarters in Washington, DC, the Institute promotes safety, education, advocacy, and compliance training, and promotes public awareness of the vital role recycling plays in the U.S. economy, global trade, the environment and sustainable development.
• **In 2014, ISRI issued a policy statement discouraging the use of one-bin collection systems due to strong feelings from our member companies regarding the degradation in quality of recyclables recovered from such systems.**
ISRI One-Bin Collection Policy

As adopted by the ISRI Board of Directors July 23, 2014

ISRI supports the collection and sortation of recyclable materials in a manner that optimizes the value and utilization of the material as specification grade commodities to be used as feedstock to manufacture new products.

Since the quality of the recyclables as specification grade commodities is essential, ISRI opposes the commingling of recyclables with solid waste or mixed waste processing in a one-bin system where all solid waste and recyclables are placed together with no separation prior to recycling.
• From this survey, ISRI has finally gleaned hard data from paper mills about the poor quality and contamination of one-bin collected recyclables and the resulting impact on their purchasing and sourcing decisions.

• It is now clear that in communities where Dirty MRFs are put in place, the recycling of paper is significantly diminished, both in quality and quantity.
Major Findings of the Study

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Major Findings of the Study

• Of the respondents, 25% purchase “some” material from dirty MRFS, but these mills purchase less than 10% of their required tonnage from mixed waste processing centers.
Major Findings of the Study

• Of those that purchase recovered fiber from mixed waste processing centers, 70% find the quality to be WORSE than most other recovered paper, and 90% of those mill buyers have had to DOWNGRADE or REJECT the paper from the mixed waste processing centers, at a higher rate than recovered paper from “regular” MRFs.
Major Findings of the Study

• 62%, or nearly 2/3 of those surveyed feel that ISRI specs should contain a statement as part of the paper specifications that states: “paper recovered from one-bin programs, separated in mixed-waste processing centers, is not fit for use in USA paper mills.”
Major Findings of the Study

• Of the 75% of respondents who do not purchase recovered fiber from mixed waste processing centers, the top 8 reasons given, for NOT purchasing it, were as follows:

1. Contamination
2. Odor
3. Low Quality
4. Exhibit a higher level of prohibitives and outthrows versus what is acceptable
5. Internal quality standards prevent purchasing
6. Too risky
7. Excessive moisture, and
8. Quality will not meet the mills’ customers’ needs
The Scrap Industry Faces A Growing List of Challenges Today, Including…

• Falling Commodity Prices

• Uneven U.S. Manufacturing Growth

• Weaker Overseas Growth & Scrap Demand
Main Driver of Globalization: China

Volume of Total U.S. Scrap Exports to Mainland China, 1989 - 2014 (metric tons)

Sources: US Census Bureau/US International Trade Commission

- **1989-1999**: 9 million mt
- **2000-2014**: 211 million mt
From Bad to Worse: ISRI Index Lowest Since 2009

ISRI Index: Jan 2008 - Sep 2015
(Jan 1998 = 100)
## Comparison of 1-Year Scrap Price Performance

<table>
<thead>
<tr>
<th></th>
<th>Oct-14</th>
<th>Oct-15 (p)</th>
<th>% CHG</th>
</tr>
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<tbody>
<tr>
<td><strong>Ferrous ($/gt)</strong></td>
<td></td>
<td></td>
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<tr>
<td>Composite No. 1 HMS</td>
<td>342.5</td>
<td>152.5</td>
<td>-55%</td>
</tr>
<tr>
<td><strong>Nonferrous (cents/lb.)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refiners No. 2 copper</td>
<td>275.57</td>
<td>210</td>
<td>-24%</td>
</tr>
<tr>
<td>Old Cast and Sheet Aluminum</td>
<td>72.9</td>
<td>51</td>
<td>-30%</td>
</tr>
<tr>
<td><strong>Recovered Paper ($/st)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCC (11)</td>
<td>103.33</td>
<td>100.83</td>
<td>-2%</td>
</tr>
<tr>
<td><strong>Plastic (cents/lb.)</strong></td>
<td></td>
<td></td>
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<tr>
<td>HDPE Bottles Natural Bales</td>
<td>53-54</td>
<td>25-28</td>
<td>-50%</td>
</tr>
<tr>
<td>from Curbside, (FOB U.S. East</td>
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<tr>
<td>Coast)</td>
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</tbody>
</table>

Why Aren’t Scrap Market Conditions Better: Domestic Trends

• Falling prices have contributed to heightened competition for available feedstock and diminished supply.
• Uneven manufacturing growth.
• Excess domestic scrap processing capacity.
• Margin compression.
• Logistical challenges across the transportation front.
• Constantly shifting regulatory landscape.
Why Aren’t Scrap Market Conditions Better: Global Trends

• Weaker overseas scrap demand generally and from China in particular as primary prices have declined, Chinese generation increases and growth slows.

• Excess global production across a range of commodity markets, e.g. crude oil, iron ore, etc.

• Stronger dollar and rising commodity price volatility.

• Transportation headaches.

• Global deflationary pressure.

• But scrap industry remains resilient!

For the first nine months of 2015, heavier loadings of recovered paper and fiber helped to keep the volume of scrap shipments to China in positive territory, even as the value of total YTD U.S. scrap exports to China fell 13% due to the sell-off in commodity prices.
Keys Going Forward

- Hard to see short-term bullish scenario for commodities at present, with continued impacts on scrap supply and demand expected.
- Need for cutbacks in excess global primary commodity capacity and production in order to rebalance commodity markets.
- Continued industry consolidation/rationalization expected.
- Commodity prices are beyond the recycling industry’s control: focus on operational efficiency and quality, new market development and product diversification.
- Targeted investment.
- Cyclical, evolving industry.
- Longer term positive trends.
- Education and ISRI: Jason Project, Design for Recycling, etc.
Thank you

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