

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

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Ex Parte 704 (Sub-No. 1)

REVIEW OF COMMODITY, BOXCAR, AND TOFC/COFC EXEMPTIONS

**REPLY COMMENTS OF
THE INSTITUTE OF SCRAP RECYCLING INDUSTRIES, INC.**

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In accordance with the Notice of Proposed Rulemaking (“NPRM”) issued by the Surface Transportation Board (“Board” or “STB”) on March 23, 2016 and the later scheduling decision, the Institute of Scrap Recycling Industries, Inc. (“ISRI”) hereby submits these Reply Comments.¹ As explained herein, the Board’s proposal to revoke the commodity exemption for iron and steel scrap (STCC 40-211) is consistent with the exemption revocation statute at 49 U.S.C. § 10502(d) and is supported by the record in this proceeding and should be adopted.

In this Reply, ISRI primarily responds to the objections expressed by the railroad parties regarding the proposed exemption revocation for STCC 40-211. ISRI shows that these objections fail to warrant withdrawal of the proposed revocation. This Reply is supported by the Verified Statement of David Borsuk (“Borsuk V.S.”), who is the Manager of Industrial Marketing and Environmental Affairs for Sadoff Iron & Metal Company (“Sadoff”), and the Verified Statement of Greg Dixon (“Dixon V.S.”), who is the Chief Executive Officer for Smart Recycling Management LLC (“SRM”). The two Verified Statements are attached hereto as **Exhibits 1** (Borsuk V.S.) and **2** (Dixon V.S.). This Reply is also supported by the Rebuttal Verified Statement of Mr. Henry Julian Roman (Jay Roman), President of Escalation

¹ The Board modified the due dates for comments in a scheduling decision served May 6, 2016.

Consultants, Inc. (“Roman Rebuttal V.S.”), which is attached as **Exhibit 3**. Mr. Roman’s Rebuttal V.S. specifically addresses certain flaws in the revenue-to-variable cost ratio (“R/VC”) analyses submitted in support of the opening comments of the Association of American Railroads (“AAR”) by Dr. Mark Israel and Mr. Jonathan Orszag, both Senior Managing Directors for Compass Lexecon. Finally, ISRI also attaches a support letter from Pacific Steel & Recycling, a ferrous scrap recycling business with numerous locations in the western United States and Canada, at **Exhibit 4**.

I. THE BOARD USED THE CORRECT STANDARD FOR REVOCATION

Various railroad parties erroneously assert that the Board’s proposed exemption revocations are faulty because the Board did not find any specific abuse of market power by the railroad industry. For example, Norfolk Southern complained that “[t]here is no finding by the STB that railroads have in any way abused market power with respect to these commodities.”² The Union Pacific Railroad (“UP”) stated that “[t]here is no evidence of any competitive abuse.”³ The AAR similarly argued that the Board must find “concrete instances of abuse of market power” before acting.⁴ These assertions are incorrect; no finding of market power abuse is required before an exemption may be revoked. The express wording of the revocation statute requires only consideration of the National Rail Transportation Policy of § 10101. See 49 U.S.C. § 10502(d).

The legislative history of the revocation statute also supports this view. In the Conference Report accompanying the legislation that became Interstate Commerce Commission Termination Act (“ICCTA”), the conferees stated that “[w]hen considering a revocation request,

² Norfolk Southern Opening Comments at 4. See also id. at 17 and 30-32.

³ UP Opening Comments at 4.

⁴ AAR Opening Comments at 37.

the Board should continue to require demonstrated abuse of market power that can be remedied only by reimposition of regulation or that regulation is needed to carry out the national transportation policy.⁵ This statement clearly demonstrates that there are alternative showings that can support revocation of an exemption and that evidence of market power abuse is only one permissible showing, but is not the only type of evidence that can support exemption revocation. The Board itself has said that, in deciding whether to revoke an exemption, it looks at “whether the shipper lacks sufficient intermodal alternatives and whether the carrier has market power that it could abuse with respect to the traffic, thus necessitating regulatory oversight.”⁶

Precedent reveals that revocation can occur without particular instances of market power abuse. The Second Circuit previously addressed whether actual competitive injury is required in a revocation case. See Mr. Sprout, Inc. v. U.S., 8 F.3d 118 (2nd Cir. 1993). After the appellant argued that the Interstate Commerce Commission (“ICC”) erred by requiring more than just a potential for competitive harm, the Second Circuit found that the ICC never required a “precise level of competitive harm” in the case. Instead, appellants merely needed to show potential injury “grounded in facts indicating a real possibility of competitive harm.” Mr. Sprout, 8 F.3d at 126. Thus, revocation of an exemption is not necessarily intended to remedy past market power abuse, but to protect shippers from possible future market power abuse.

After evaluating substantial changes to the dynamics of the rail market, as well as changes to railroad pricing behaviors, the Board determined that revoking the iron and steel scrap exemption would carry out relevant factors of the national Rail Transportation Policy (“RTP”). See NPRM at 4 (“[W]ith respect to these commodities, the Board believes that

⁵ H.Rep. 104-422 at p. 169 (Dec. 18, 1995) (emphasis added).

⁶ Pejepscot Industrial Park, Inc. d/b/a Grimm Industries – Petition for Declaratory Order, STB Docket No. 33989, slip op. at 7 (n. 15) (served May 15, 2003) (emphasis added).

reestablishing regulatory oversight is necessary to foster sound economic conditions in transportation, 49 U.S.C. § 10101(5), maintain reasonable rates where there is an absence of effective competition, § 10101(6), and prohibit predatory pricing and practices, avoid undue concentrations of market power, and prohibit unlawful discrimination, § 10101(12).” More specifically, the Board’s proposal to restore regulation over iron and steel scrap rail shipments was based on its finding that there is an increased likelihood of an exercise of railroad market power over such rail traffic. See, e.g., NPRM at 8 (finding that the data “suggests that railroads may be exerting increased market power over shippers of these commodities” in STCC 40-211 and 33-12). ISRI and other commenting parties agree that the RTP supports revocation of various exemptions.⁷ Certain railroad parties have also cited to the RTP and have primarily emphasized the single factor that seeks “to minimize the need for Federal regulatory control.”⁸ However, “it is up to the Board to arrive at a reasonable accommodation of the conflicting policies set out in the Staggers Act.”⁹ Moreover, the Board should give significantly less weight to that RTP factor in this proceeding because it directly contradicts the very purpose of the exemption revocation statute.

II. THE BOARD’S USE OF R/VC DATA IS CONSISTENT WITH PRECEDENT, VOLUMINOUS AUTHORITY, AND RAILROAD PRACTICE

Several parties use their opening comments to strenuously object to the Board’s reliance on R/VC ratios as support for the revocations proposed in the NPRM. BNSF argued that R/VC ratios “are not reliable indicators of market dynamics,” but, instead, they create “dangers” and

⁷ See, e.g., ISRI Opening Comments at 8-11; Opening Comments of The American Forest & Paper Association at p. 21-22 (filed July 26, 2016); Opening Comments of The Portland Cement Association at p. 5-13 (filed July 26, 2016).

⁸ AAR Comments at 18; 49 U.S.C. § 10101(2).

⁹ Association of American Railroads v. STB, 306 F.3d 1108, 1111 (D.C. Cir. 2002) (citation omitted).

“ignore[] market realities.”¹⁰ UP criticized the Board’s alleged “near-exclusive reliance on R/VC ratios,” which the UP expert believes to be “too blunt.”¹¹ Norfolk Southern claimed the Board’s examination of traffic with an R/VC above 180% is “meaningless” because “an R/VC ratio of 180% lacks any economic significance.”¹² The AAR stated that reliance on R/VC ratios is “arbitrary,” and CSXT simply asserted that “[c]iting R/VC ratios...is no evidence of market power.”¹³

Attacks on the Board’s use of R/VC data are misguided and incorrect. R/VC ratios have long been utilized by Congress, the courts, and the Board (and, previously, the ICC) in evaluating railroad market power. The railroad parties *themselves* have repeatedly cited R/VC ratios in commodity exemption proceedings in the past when advocating for imposition of new exemptions. Further, as shown in Mr. Roman’s Rebuttal V.S., expert testimony provided by the AAR to cast doubt on the reliability of R/VC ratios as an indicator of railroad market power is based on flawed analyses and, thus, lacks credibility.

A. Congress, the Board, and the Courts have Recognized that R/VC Ratios Can Be Used to Evaluate Railroad Market Power

The railroads are simply incorrect in their assertion that R/VC ratios shed no light on market power and are economically meaningless. The relevance of R/VC data to railroad market power has been recognized repeatedly by Congress and the courts, and R/VC ratios are utilized by the Board for a variety of regulatory purposes related to railroad market power. Furthermore, Congress ordered this agency to conclusively find that railroads are not market dominant for

¹⁰ BNSF Opening Comments at 2, 8, and 10.

¹¹ UP Opening Comments at 2 and 12.

¹² NS Opening Comments 14.

¹³ AAR Opening Comments at 22; CSXT Opening Comments at 3. See also CSXT Opening Comments at 7 (“R/VC ratios are a very poor indicator of market power.”).

purposes of rate cases when the relevant R/VC is less than 180%. See 49 U.S.C.

§ 10707(d)(1)(A). In contrast, if the relevant R/VC equals or exceeds 180%, the railroad might be market dominant for purposes of a rate case. Hence, clearly, Congress has stated that R/VC ratios are informative when assessing railroad market power.

The relevance of R/VC ratios to railroad market power is reflected in numerous other regulatory contexts and statements from authorities, as shown below.

1. Railroad rate reasonableness cases

In fulfilling its duties in adjudicating rail rate reasonableness cases, the Board utilizes R/VC ratios repeatedly, often in some relationship to railroad market power. For example, the Board has relied upon Revenue Shortfall Allocation Method (“RSAM”)¹⁴ and R/VC ratios when evaluating railroad market dominance in recent cases such as M&G Polymers USA, LLC v. CSX Transportation, Inc., STB Docket No. 42123, slip op. at 13-21 (served Sept. 27, 2012) and E.I. du Pont de Nemours and Company v. Norfolk Southern Railway Company, STB Docket No. 42125, slip op. at 18-21 (served Mar. 24, 2014). Use of a quantitative measurement of railroad market power for the qualitative component of a market dominance evaluation has judicial approval. See, e.g., CF Industries, Inc. v. STB, 255 F.3d 816, 822 (D.C. Cir. 2001) (“While the Board’s market dominance guidelines contemplate the use of such qualitative considerations, they do not exclude the application of quantitative analysis as well.”) (citation omitted).

¹⁴ RSAM represents “the average markup that the railroad would need to charge all of its ‘potentially captive’ traffic in order for the railroad to earn adequate revenues as measured by the Board.” See, e.g., Simplified Standards for Rail Rate Cases – 2013 RSAM and R/VC>180 Calculations, STB Ex Parte No. 689 (Sub-No. 6), slip op. at 1 (served Sept. 3, 2015). For purposes of RSAM, “potentially captive traffic” means “all traffic priced at or above the 180% R/VC level.” Id. at 2. Thus, RSAM is an aggregated R/VC ratio based on a portion of the subject railroad’s traffic.

In implementing its rate reasonableness duties, the Board also uses R/VC ratios as part of the Maximum Markup Methodology (“MMM”) to allocate joint and common costs among the various shippers in a Stand-Alone Railroad (“SARR”) traffic group.¹⁵ Of course, SARR traffic group members who receive a greater allocation of such costs have more inelastic demand, meaning that the relevant railroad has more market power over them. In other words, the R/VC ratios of the SARR traffic group represent the degree of railroad market power. See, e.g., Major Issues in Rail Rate Cases, STB Ex Parte No. 657 (Sub-No. 1), slip op. at 16 (served Oct. 30, 2006) (“the Maximum Markup Methodology reflects the important principle that a railroad should recover as much of its costs as possible from each shipper served before charging differentially higher rates to its captive shippers.”) (citation omitted).

Reference to MMM highlights another point – the concept of differential pricing. The Board’s large rate case standards are based partially upon this concept, which means that higher rates must be charged to shippers with inelastic demand. See, e.g., BNSF Railway Company v. STB, 526 F.3d 770, 774 (D.C. Cir. 2008) (“Because captive shippers have inelastic demand, the railroads can charge them higher rates with a lower risk of losing their business.”).¹⁶ Again, this concept is not far from the view that R/VC ratios are higher when railroads have market power.

Underpinning all these examples is the theory that rates will be higher when a service provider (such as a railroad) has market power. From an economics perspective, this should not

¹⁵ As the Board has said, “Congress regarded R/VC ratios as an appropriate measure for allocating joint and common costs among rail shippers.” Major Issues, slip op. at 14.

¹⁶ See also Major Issues, slip op. at 13 (“the SARR (and therefore the carrier) must be allowed to engage in demand-based differential pricing”) (citation omitted); Consolidated Rail Corp. v. U.S., 812 F.2d 1444, 1454 (3rd Cir. 1987) (Stating that, in the *Coal Rate Guidelines*, “the ICC would permit carriers to charge captive shippers a higher share of unattributable costs than shippers in the competitive market share.”); Coal Rate Guidelines – Nationwide, 1 ICC.2d 520, 534 (1985) (Constrained Market Pricing “establishes constraints on the pricing freedom of the railroads which induce them to price all traffic efficiently. As with Ramsey pricing, services are priced according to market demand...”).

be an earth-shattering conclusion and, in fact, it has been judicially recognized by the courts at various times. See, e.g., CF Industries, 255 F.3d at 823 (stating that an “accepted method of measuring market power” is “based on the recognition that although a firm in a competitive market cannot raise its prices without a net loss of revenue, a firm with market power can”) (citation omitted); Arizona Public Service Company v. United States, 742 F.2d 644, 654 (D.C. Cir. 1984) (stating that “competitive pressure” is related to a railroad’s ability to raise prices). In the rate case context, the Board and the courts have also occasionally evaluated the railroad’s rates when determining whether rail service has effective competition from other modes of transportation.¹⁷

2. Commodity and traffic exemption proceedings.

Opposition to the use of railroad R/VC ratios as an indicator of market power in the commodity exemption context is all the more baffling given that such ratios were repeatedly utilized when the exemptions were first adopted. See, e.g., Petition to Exempt From Regulation the Rail Transportation of Scrap Paper, 9 ICC.2d 957, 960 (1993) (the existence of low railroad R/VC ratios “indicates...that the traffic...is generally subject to significant competition”); Rail General Exemption Authority – Exemption of Grease or Inedible Tallow, Etc., 10 ICC.2d 453, 460-461 (1994) (“We believe that an examination of shipper and rail contracting prices, rail pricing behavior, rate levels, and R/VC ratios in these markets indicates that railroads have not been able to assert any meaningful market power.”); Rail General Exemption Authority – Exemption of Carbon Dioxide, 10 ICC.2d 359, 363 (1994) (exempting carbon dioxide transportation because, among other things, “competing forces have acted to keep rail rates at competitive levels, *i.e.*, at average R/VC ratios less than 180%”); Rail General Exemption

¹⁷ See, e.g., FMC Wyoming Corp. v. Union Pacific Railroad Co., 4 STB 699, 719 (2000); Arizona Public Service v. U.S., 742 F.2d 644, 650-651 (D.C. Cir. 1984).

Authority – Exemption of Ferrous Recyclables, 1 STB 173, 176 (1996) (“We continue to believe that R/VC ratios are useful in analyzing the degree of market power by the railroad industry in connection with transportation of particular commodity groups.”); Rail General Exemption Authority – Nonferrous Recyclables, 3 STB 62, 63 (1998) (“[t]he transportation of nonferrous recyclables is very competitive, as evidenced by the overall r/vc percentage,” the decline in revenue per ton mile, and the decline in rail market share).

The D.C. Circuit has previously found that agency reliance on aggregated R/VC data to be “justified” in a boxcar exemption analysis even though it may be “imperfect.” Brae Corp. v. United States, 740 F.2d 1023, 1040-1041 (D.C. Cir. 1984). Certainly aggregated R/VC data is not perfect, but no class-wide method of analysis ever can be. If class exemptions are to be utilized in the rail industry, then an aggregated method of analyzing the relevant transaction type or commodity is necessary.¹⁸

B. Railroads have Long Relied on R/VC Data as Evidence in Commodity Exemption Proceedings

The vehement resistance of several railroad commenting parties to the Board’s use of R/VC data in the NPRM is particularly ironic. When R/VC data has supported creation of commodity exemptions, as it did many years ago, railroads were not reluctant to submit such R/VC data to the agency as a means to convince the agency to create new exemptions. As just a few examples:

- Conrail submitted R/VC data to the ICC to advocate for a boxcar exemption. Brae Corp. v. United States, 740 F.2d 1023, 1040 (D.C. Cir. 1984).

¹⁸ Cf. CF Industries, 255 F.3d 816 at 823 (n. 12) (“Although techniques exist for measuring market power more directly, they involve data not typically available to courts or regulators, and data which the parties agree are not part of the record in this case.”) (citation omitted).

- When the AAR and nine individual railroads petitioned the ICC to exempt scrap paper, they cited to the nine railroads' R/VC ratios for that commodity. Petition to Exempt from Regulation the Rail Transportation of Scrap Paper, 9 ICC.2d 957, 960 (1993).
- When the AAR supported the ICC's proposal to exempt salt and rock salt, its "chief argument" was that "R/VC ratios of salt and rock salt are far below the level of 180%." Rail General Exemption Authority – Exemption of Rock Salt, Salt, 10 ICC.2d 241, 249 (1994).
- The AAR's witness submitted commodity-level R/VC data to the ICC in support of a petition to exempt ferrous recyclables. Rail General Exemption Authority – Exemption of Ferrous Recyclables, 10 ICC.2d 635, 641-642 (1995).
- AAR submitted R/VC figures for cement traffic during the ICC's consideration of whether to exempt that commodity. Rail General Exemption Authority – Exemption of Hydraulic Cement, 10 ICC.2d 649, 652 (1995).
- In advocating for exemption of nonferrous recyclables transportation, AAR claimed the market was "highly competitive and characterized by declining rates...and low revenue-to-variable cost (r/vc) percentages." Rail General Exemption Authority – Nonferrous Recyclables, 3 STB 62, 63 (1998).

These examples reveal that the railroad commenting parties actually do believe (and have relied on the premise) that R/VC ratios are relevant to evaluation of commodity exemptions. It seems obvious that the substantial consolidation of the rail industry (and the resultant increasing rates and market power that have resulted in higher R/VC ratios) has caused the railroads to now assert the self-serving position that R/VC ratios have suddenly become unreliable. The railroads' "about-face" lacks credibility and must be rejected.

Moreover, the AAR joined with nine individual railroads and ISRI in petitioning the ICC to exempt transportation of ferrous scrap (recyclables) in 1994. In that proceeding, the petitioners argued that “[p]rice trends...for transporting ferrous recyclables provide telling evidence of the competitive forces at work.”¹⁹ Additionally, they asserted that “the basic inquiry” under an exemption analysis “is whether competitive constraints and other market forces will be effective...in preventing railroads from abusing market power by charging unreasonable rates or engaging in other anticompetitive activities.”²⁰ Clearly, the railroads believed rate levels were extremely informative regarding, and applicable to, railroad market power over transport of STCC 40-211 when it suited their regulatory objectives at that time.

C. The Board should Reject the Collateral Attacks on URCS and R/VC Ratios

As part of its effort to discredit the NPRM, the AAR engages in a broad-based critique of the entire concept of an R/VC ratio, as well as the Uniform Rail Costing System (“URCS”) utilized by the Board to calculate railroad variable costs. See, AAR Opening Comments at 23-27. This type of collateral attack on the Board’s economic costing regulation is far outside the scope of this rulemaking and is improper for consideration in this forum. Indeed, the Board is currently considering changes to URCS in a separate rulemaking proceeding, Review of the General Purpose Costing System, STB Ex Parte No. 431 (Sub-No. 4). AAR’s concerns about URCS should be filed in that proceeding or be the subject of a new Petition for Rulemaking to the Board.

¹⁹ See Petition to Exempt From Regulation the Rail Transportation of Ferrous Recyclables, ICC Docket No. 346 (Sub-No. 35) at p. 12 (filed Apr. 25, 1994) (“Petition to Exempt”).

²⁰ Petition to Exempt at p. 18.

As part of its wide-ranging attack, AAR cites a third-party report to criticize the Board's use of R/VC ratios to allocate railroad costs,²¹ but courts have approved the Board's methods. See, e.g., BNSF Railway Company v. STB, 526 F.3d 770, 777-780 (D.C. Cir. 2008) (affirming use of Maximum Markup Methodology, which relies on the use of R/VC ratios, to set rates in Stand-Alone Cost rate cases). In any event, AAR's broad-brush critique is well outside the bounds of this commodity exemption proceeding. For the same reasons, the AAR's invocation of various third-party studies regarding use of R/VC ratios and URCS costs is similarly off-the-mark. See, e.g., AAR Opening Comments at 22-29.

AAR also asserts that the Board's proposed revocation "directly contradicts" 49 U.S.C. § 10707 because of the Board's use of R/VC data. See AAR Opening Comments at 23. AAR's assertion reflects confusion and a conflation of two separate and distinct concepts. The cited statute concerns market dominance in rail rate cases – it does not govern commodity exemptions. The exemption statute does not bar the use of R/VC ratios in considering whether an exemption is appropriate; furthermore, R/VC ratios have long been used in commodity exemption proceedings by the ICC and the Board. See Section II.A.

The Board should also reject the AAR's wide-ranging criticism of R/VC ratios because it relies heavily upon poorly designed and/or insufficiently supported statistical analyses. First, AAR cited to its experts' finding that railroad rates can remain high even when a shipper is served by two Class I railroads, thereby allegedly showing the faulty nature of R/VC ratios. See AAR Opening Comments at 28. This attempted "critique" fails miserably; in fact, it confirms the need for Board revocation in this proceeding – when the marketplace does not effectively

²¹ AAR Opening Comments at 24-25.

constrain railroad pricing power, even where two railroads serve a shipper, then Board regulatory oversight is undoubtedly necessary.

Moreover, the AAR experts' finding is flawed and misleading due to the construction of the data analyses, as explained in Mr. Roman's Rebuttal V.S.. In performing certain R/VC analyses, the AAR's experts improperly assumed that rail competition existed for certain selected movements based only on multi-carrier access to the destination, thus ignoring whether the origin was captive. Roman Rebuttal V.S. at 4-5. If an origin is captive, there can be no competition for the entire origin-to-destination movement and the AAR experts' conclusion is unsound. Their study also rested on the assumption that, if two railroads transporting a particular STCC serve a large railroad station such as Houston, then all movements of that STCC from Houston are competitively-served. Roman Rebuttal V.S. at 5-6. Obviously, such an assumption is fatally flawed because Houston is filled with multiple shippers for many common commodities. The erroneous mixing of captive and competitively-served shippers is exacerbated by the AAR experts' use of five-digit STCC codes instead of the more precise seven-digit codes. Roman Rebuttal V.S. at 6.

The AAR's experts also included high-rated TIH commodities in their analysis, which inevitably skewed the results because TIH commodities, due to liability concerns, tend to have high railroad rates regardless of competition factors. Roman Rebuttal V.S. at 5. Finally, the AAR experts purported to remove gateways from the analysis in order to eliminate the effect of Rule 11 rates, but Mr. Roman found that many common gateways were in fact still included in the study parameters. Roman Rebuttal V.S. at 7.

The AAR experts' conclusion in the Conrail study is also of questionable value. See AAR Opening Comments at 28. The experts allegedly determined that many captive Conrail

shippers saw an increase in rail rates when they obtained access to both Norfolk Southern Railway and CSXT, but their analysis is based on data that raises more questions than it answers. It is unknown whether the AAR's experts controlled for changes in STCCs, whether truck or water transportation competition existed at the time of Conrail service, and the extent to which high-rate TIH movements were included in the underlying analysis. Roman Rebuttal V.S. at 8-9. In other words, insufficient data and explanation exists for the conclusions drawn by the AAR's experts, rendering these conclusions dubious at best.

Moreover, Mr. Roman has shown that overall rail rates have risen substantially over the past fifteen years, and at a rate much faster than motor carrier rates. Roman Rebuttal V.S. at 9. It would be incongruous to base a deregulatory action on a finding that railroads are successfully exploiting rail market power and significantly raising rates regardless of whether two carriers serve a given shipper.

III. THE RAILROADS' CLAIMS THAT THE NPRM IS LEGALLY DEFICIENT HAVE NO MERIT

The AAR's Opening Comments include a smattering of other inapplicable, incorrect, or otherwise irrelevant claims that the Board must abandon its proposals because it has failed to follow reasonable rulemaking procedures. The Board can and should easily dispose of these attempts to deflect from the real issue at hand, which is increasing railroad market power over certain commodities, thus justifying the restoration of STB regulation and oversight.

Moreover, there is an obvious mismatch in the AAR's criticism of the legality of the NPRM for the simple reason that the AAR attacks the Notice of *Proposed* Rulemaking with court precedent applicable to issuance of *Final* Rules and other *final* agency action. See, e.g., AAR Opening Comments at 36-41. The AAR Opening Comments are riddled with arguments and statements treating the NPRM as final agency action: "the Board now concludes" (p. 38),

“the Board’s decision to revoke these exemptions, in whole” (p. 39, quotation omitted), “the NPRM’s conclusory observation” (p. 41), and “the Board’s decision to press ahead with the blanket revocation” (p. 41). However, at the current stage of *this* proceeding, comments are still being submitted, Board evaluation of those comments has not yet occurred, and the Board’s determination of how to exercise its rulemaking authority has not yet been decided. The NPRM is not final agency action²² because the Board has not “completed its decision-making process.”²³ In short, AAR’s treatment of the NPRM as final agency action is premature at best. If and when a final rule is issued, the Board must “cogently explain” its decision and engage in a “reasonable exercise” of its rulemaking authority.²⁴

AAR also contends that the NPRM is faulty because it relies on “stale, inadequate data.” See AAR Opening Comments at 40. Regarding the alleged staleness of the data, the AAR is simply incorrect. The NPRM makes clear that it is based on the most recent waybill data on file with the Board. See NPRM at 3 (n. 5). The AAR also challenges the Board’s reference to 2011 testimony in the NPRM, but, the staleness critique is ironic given that AAR itself and several other railroad parties have also cited 2011 evidence in support of their view that railroads lack market power. See, e.g., AAR Opening Comments at 9-11; NS Opening Comments at 18 and 31. The AAR also relies on the 2009 Christensen Report to argue that railroad market power is absent. See AAR Opening Comments at 9 (n. 3). AAR’s “staleness” and “inadequacy” critique

²² Pursuant to 28 U.S.C. § 2342(5), courts of appeal only have jurisdiction over “rules, regulations, or final orders” of the Board.

²³ Franklin v. Massachusetts, 505 U.S. 788, 797 (1992).

²⁴ Motor Vehicle Manufacturers Association of the U.S. v. State Farm Mutual Automobile Insurance Co., 463 U.S. 29, 48-49 (1983) (citation omitted) (cogent explanation required when agency exercises its discretion); Cuozzo Speed Technologies, LLC v. Lee, 136 S.Ct. 2131, ____ U.S. ____, No. 15-446, slip op. at 17-20 (June 20, 2016) (affirming Patent Office’s reasonable exercise of its rulemaking authority).

is merely a continuation of the AAR's misguided attempt to treat the NPRM as a final rule subject to appellate review. If and when the Board issues a final rule, its decisions will presumably be based upon the complete record before it, including all of the numerous new comments that it has received in response to the NPRM, including the substantial evidence and comments that support its proposals.

Both the AAR and NS express considerable heartache over the Board's use of the "deliberative process privilege" to withhold certain documents from distribution. See, e.g., AAR Opening Comments at 41-42; NS Opening Comments at 5-13. Communications among Board staff, NS attorneys, and AAR attorneys reveal that the Board's FOIA Officer and the Board's Chairman carefully considered the objections to withholding raised in the Opening Comments and took pains to release all documents not covered by an applicable privilege. See, e.g., NS Opening Comments, Exhibit F (letter from Chairman Elliott to Mr. Geoffrey Sigler and Ms. Cynthia Richman, dated June 14, 2016).

The AAR also asserts that it was improper for the Board to invite comment on the possible exemption revocation for other commodities. AAR Opening Comments at 42-43. With this assertion, AAR forgets that "[a]gencies are not limited to adopting final rules identical to proposed rules"²⁵ and "[t]he final rule need not be the one proposed in the NPRM."²⁶ Obviously, the AAR was aware, at the time it filed its Opening Comments, of the possibility of other commodities being proposed by commenting parties.²⁷ Thus, exemption revocation as to such

²⁵ National Mine Association v. Mine Safety & Health Administration, 116 F.3d 520, 531 (D.C. Cir. 1997).

²⁶ Agape Church, Inc. v. FCC, 738 F.3d 397, 411 (D.C. Cir. 2013).

²⁷ Kooritzky v. Reich, 17 F.3d 1509, 1513 (D.C. Cir. 1994) ("Agencies should be free to adjust or abandon their proposals in light of public comments or internal agency reconsideration without having to start another round of rulemaking....The necessary predicate, however, is that

other commodities would represent a “logical outgrowth” of the NPRM.²⁸ To the extent that commenting parties used their Opening Comments to suggest other commodities that are ripe for exemption revocation, the AAR has had the opportunity to respond to those suggestions in its Reply Comments, and, therefore, the purposes of notice-and-comment have been served.²⁹

The AAR’s other contentions can also be easily dismissed. The AAR contends that “[t]he NPRM’s reasoning...marks an abrupt...departure from its settled precedents.” See AAR Opening Comments at 39. As mentioned above, the NPRM does not constitute final agency action, so it cannot function as a departure from precedent. Moreover, the commodity exemptions at issue in this proceeding have been in place for 20 years or more; therefore, there is nothing abrupt about a proposed revocation of the applicable exemptions. The Supreme Court has recognized that “regulatory agencies do not establish rules of conduct to last forever” and, therefore, agencies “must be given ample latitude to adapt their rules and policies to the demands of changing circumstances....[because] the forces of change do not always or necessarily point in the direction of deregulation.” Motor Vehicle Manufacturers, 463 U.S. at 42 (citation and quotation omitted).

IV. THE RAILROADS HAVE MARKET POWER OVER STCC 40-211

In the NPRM, the Board determined that ferrous scrap traffic is “increasingly potentially captive to railroads” and that “railroads may be exerting increased market power” over shippers

the agency has alerted interested parties to the possibility of the agency’s adopting a rule different than the one proposed.”) (citation omitted).

²⁸ Agape Church, 738 F.3d at 411 (quotation and citation omitted).

²⁹ Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 547 (D.C. Cir. 1983) (evaluating “how well the notice that the agency gave serves the policies underlying the notice requirement”). But see Fertilizer Institute v. EPA, 935 F.2d 1303, 1312 (D.C. Cir. 1991) (agency itself must provide the notice, and agency cannot expect parties to read all other parties’ comments).

of ferrous scrap. NPRM at 8. This determination is correct and, in fact, the Board can and should go further with its findings in this proceeding. As ISRI explained in its Opening Comments, railroads have and exercise market power over rail-dependent ferrous scrap traffic. See ISRI Opening Comments at 5-7. Various railroad parties used their opening comments to dispute this market power. For instance, CSXT asserted that the transportation of ferrous scrap is “intensely competitive.”³⁰ The railroads generally support their assertions with attempted descriptions of the ferrous scrap industry, but these descriptions³¹ are overly simplistic and woefully inadequate to give a true sense of transportation realities that render a significant portion of ferrous scrap traffic dependent upon rail transportation.

As explained in the attached Verified Statements of David Borsuk and Greg Dixon, railroad market power is a daily fact of life in the ferrous scrap industry, and railroads exert market power in the ferrous scrap transportation market in numerous ways. Rail transportation rates have noticeably risen over the past several years.³² Negotiation of rail rates and service terms is a thing of the past, replaced now by take-it-or-leave it rates.³³ Service can be poor,³⁴ and it is challenging to obtain a reliable and timely supply of railroad-provided gondola railcars.³⁵

As explained by Mr. Borsuk and Mr. Dixon, the railroads’ attempted description of the ferrous scrap industry is naïve, incorrect, and incomplete. The railroads’ comments focused

³⁰ CSXT Opening Comments at 5. See also NS Opening Comments at 28 (“railroads do not hold significant power”); UP Opening Comments at 9-11 (describing ferrous scrap transportation market).

³¹ See, e.g., UP Opening Comments at 9-11; CSXT Opening Comments at 5-6 (and Verified Statement of Michael Rutherford at 1-6); NS Opening Comments, Verified Statement of James Schaaf at 6-8; AAR Opening Comments at 34.

³² Borsuk V.S. at ¶ 17; Dixon V.S. at ¶ 24.

³³ Borsuk V.S. at ¶ 18; Dixon V.S. at ¶¶ 24 and 25.

³⁴ Borsuk V.S. at ¶¶ 21-23.

³⁵ Borsuk V.S. at ¶¶ 14 and 24-26; Dixon V.S. at ¶ 25.

primarily on transportation of ferrous scrap from dealers to the consumers, thus ignoring the transportation of raw scrap from the generators to the dealers.³⁶ Certain railroads' comments also emphasized the perspective of the buyers (consumers) of processed ferrous scrap, ignoring the scrap dealers.³⁷ It is not unusual for ferrous scrap dealers such as Mr. Borsuk's employer to arrange transportation of scrap, and such transportation can be either inbound to the scrap processing yard or outbound to the consumer. Borsuk V.S. at ¶¶ 3, 11, and 28.

A significant portion of the ferrous scrap transportation market is dependent on rail transportation.³⁸ Rail transportation is particularly crucial for large-volume movements, long-distance movements, and/or movements where the customer requests rail delivery.³⁹

The railroads' comments erroneously assume that all ferrous scrap is the same, and that all ferrous scrap can be interchangeably substituted by buyers and sellers. This is incorrect and overly simplistic. It evinces a failure to appreciate and understand the complexities of the ferrous scrap industry. There are different grades and specifications of ferrous scrap.⁴⁰ ISRI regularly publishes a scrap specification circular which lists over 100 different ferrous scrap specifications. See Exhibit 5 attached hereto ("Scrap Specifications Circular 2016"). The

³⁶ See, e.g., NS Opening Comments at 29-30 (stating that "large scrap producers have many yards from which they can source and ship" and that scrap consumers can substitute pig iron, direct reduced iron, and other products); CSXT Opening Comments at 5 ("This product is a commodity, and the steel companies that purchase it compete in an intense, world-wide market themselves.").

³⁷ See, e.g., CSXT Opening Comments at 5 (the "steel companies" that purchase ferrous scrap "are sophisticated buyers who weigh the delivered cost of scrap carefully"); CSXT Opening Comments, Verified Statement of Michael Rutherford at 4 ("Customers in the Scrap Market compete strongly with each other, and those competitive pressures are passed through to rail carriers in the Scrap Market.").

³⁸ Borsuk V.S. at ¶ 28; Dixon V.S. at ¶ 18.

³⁹ Borsuk V.S. at ¶¶ 13 and 28; Dixon V.S. at ¶¶ 18-21.

⁴⁰ Borsuk V.S. at ¶¶ 7-10 and 13; Dixon V.S. at ¶¶ 12-13.

particular products manufactured by consumers of ferrous scrap will determine which specifications or grades can be utilized in the manufacturing process. Borsuk V.S. at ¶ 8; Dixon V.S. at ¶ 13. Scrap dealers can only ship the specific grade of ferrous scrap that meets the specific demand of the consumers and is otherwise in accord with the terms of the governing contracts.⁴¹

The railroads' assertions of product and geographic competition are primarily based on the faulty premise that all ferrous scrap is interchangeable with all other ferrous scrap – which is utterly incorrect. As described above, there are over 100 different specifications for ferrous scrap and scrap dealers must abide by the terms of their contracts and the particular specification needs of the consumers. In short, all ferrous scrap is not interchangeable with all other ferrous scrap.

To claim that the ferrous scrap industry is a “regional” marketplace is a significant oversimplification and a grossly outdated premise. Mr. Borsuk's employer, with scrap yards in just two states, regularly receives inbound shipments from 35 different states. Borsuk V.S. at ¶ 29. Moreover, not every “region” creates the same amount of scrap in the same specifications at the same rate in consistent quantities, let alone producing ferrous scrap that exactly meets the particular specification needs, amounts, and timing of the scrap consumers in that region.⁴² A ferrous scrap consumer may have significant demand one month, and then no demand the next month. Dixon V.S. at ¶ 6. Scrap dealers must meet the current demand that exists in the marketplace, which is inconsistent and constantly changing, and this may mean shipping ferrous scrap hundreds of miles. Borsuk V.S. at ¶¶ 7-10; Dixon V.S. at ¶¶ 5-11.

⁴¹ Borsuk V.S. at ¶¶ 8 and 13; Dixon V.S. at ¶ 13.

⁴² Borsuk V.S. at ¶¶ 8-10; Dixon V.S. at ¶¶ 6-7.

Although certain steel mill consumers of ferrous scrap may have direct service from more than one railroad, scrap dealers generally do not. Most ferrous scrap dealers with rail service are captive to a single railroad. Borsuk V.S. at ¶ 19; Dixon V.S. at ¶ 22. Even a scrap dealer with multiple locations is subject to market power because each location is likely captive to a single railroad. Borsuk V.S. at ¶ 19; Dixon V.S. at ¶ 22. Therefore, a scrap dealer faced with a captive location situation cannot avoid market power by shipping scrap from a different location – the second location is captive, too. Even if scrap is shipped from the second location, the ferrous scrap waiting at the first location must be shipped at some point; the dealer cannot hold onto it indefinitely and expect to stay in business. Dixon V.S. at ¶¶ 14-17. At some point, the scrap in the first location must be transported to a consumer; it cannot be held at the first location indefinitely because the scrap dealer earns revenue on sales of scrap, not holding scrap. Inventory carrying costs continue to accrue for every day processed scrap is held without being sold. Obviously, too, a scrap dealer operating from a captive location cannot avoid the serving railroad by shipping to a different customer.⁴³

Truck transportation is utilized in the ferrous scrap industry, but a significant portion of ferrous scrap transportation market is rail-dependent. Borsuk V.S. at ¶ 28; Dixon V.S. at ¶ 18. Truck transportation is generally limited to shorter distances and smaller volumes.⁴⁴ The competitiveness of truck transportation is also compromised by persistent driver shortages, seasonal shortages, and the need to use more than one driver for longer movements. Borsuk V.S. at ¶¶ 33-34; Dixon V.S. at ¶ 21.

⁴³ Consequently, the rise of “mini-mills” has not lessened railroad market power. Borsuk V.S. at ¶ 9; Dixon V.S. at ¶ 10.

⁴⁴ Borsuk V.S. at ¶¶ 12, 28, 31, and 32; Dixon V.S. at ¶¶ 18, 20, and 21.

Water transportation is generally not competitive with rail transportation in the ferrous scrap market, largely because few scrap dealers are located on a river or ocean.⁴⁵ Even if a dealer is located on a navigable waterway, the consumer must also be located on a connected navigable waterway for water transportation to be a feasible option.⁴⁶ Water transportation is also limited by barge availability and seasonal issues (e.g., drought in summer adversely affecting water level, or freezing waterways in winter).⁴⁷

V. THE ICC'S REASONS FOR GRANTING THE IRON AND STEEL SCRAP EXEMPTION NO LONGER EXIST

ISRI, the AAR, and nine individual railroads jointly petitioned the ICC for exemption of ferrous scrap in 1994 based on reasons that are now absent. By far, the biggest goal of the exemption sought by ISRI, the AAR, and the railroads was elimination of cumbersome administrative burdens associated with tariff and contract filing, which impeded the ability of railroads to expeditiously respond to market conditions. The Petition to Exempt filed in 1994 is replete with references to the need for “decreased administrative burdens” and “ratemaking flexibility.”⁴⁸ Petitioners argued in 1994 that:

[t]he exemption sought here would increase competition...because it would free the railroads of administrative and regulatory burdens that hinder and often prevent them from competing effectively with other carriers....One such burden is the railroads' inability to respond quickly to shipper demand for changed rates and services as a result of changes in market conditions. Railroads must file tariffs or contract summaries with the ICC. Unregulated or less regulated truck and barge competitors respond by entering into contracts of carriage without being burdened by such filing requirements.

⁴⁵ Borsuk V.S. at ¶ 36; Dixon V.S. at ¶ 23.

⁴⁶ Borsuk V.S. at ¶¶ 36-37.

⁴⁷ Borsuk V.S. at ¶ 38 Dixon V.S. at ¶ 23.

⁴⁸ See Petition to Exempt From Regulation the Rail Transportation of Ferrous Recyclables, ICC Docket No. 346 (Sub-No. 35) at p. 3 (filed Apr. 25, 1994) (“Petition to Exempt”).

Petition to Exempt at p. 12 (emphasis original). The petitioners argued that “market conditions” sometimes “dictate” the need for an “immediate change” in rates, and that railroads “lose business” due to “filing delays.”⁴⁹ According to the petitioners, railroads did not have “ratemaking flexibility” and were unable to make “spot quotes,” which harmed their ability to compete with motor carriers, who are not required to file contracts with the ICC.⁵⁰

The Petition to Exempt was supported by two Verified Statements from members of the ferrous scrap industry, and both witnesses expressed their support for the exemption almost exclusively in terms of elimination of administrative burdens. Thomas Pellington of the D.J. Joseph Company penned a short, five-paragraph Verified Statement. The first two paragraphs described his company, the third paragraph discussed the administrative burden of maintaining 500 separate rail contracts, the fourth paragraph expressed the need for his company to be able to respond quickly to the marketplace without waiting for a railroad to file the respective tariff, and the fifth paragraph was a one-sentence summary.⁵¹ Similarly, Ronald Havrilla of the Columbia Iron and Metal Company stated that “[t]he current regulatory requirements viz, rates still published in tariffs, contract rates that need to be filed with the ICC, limits [sic] the railroads’ ability to be responsive to market conditions.”⁵² Columbia Iron supported the exemption, according to Mr. Havrilla, because his company needed to be able to “react to our customers as quickly as possible.”⁵³ The remainder of the Statement merely described his company and quoted the National Rail Transportation Policy.

⁴⁹ Petition to Exempt at 13-14.

⁵⁰ Petition to Exempt at 14-15.

⁵¹ Petition to Exempt, Verified Statement of Thomas Pellington.

⁵² Petition to Exempt, Verified Statement of Ronald Havrilla.

⁵³ Id.

These contract and tariff filing requirements no longer exist regardless of whether a commodity is exempt. See ISRI Opening Comments at 7-8. Thus, the main reason for shippers' support in 1994 no longer exists.

The petitioners also asserted that railroad rates for transportation of ferrous scrap were low and declining as of the early 1990's. AAR witness Paul Posey asserted that the average R/VC for ferrous recyclables was only 139.4% in 1991, and that the railroads' revenue per ton-mile for these commodities declined 38% from 1981 to 1991.⁵⁴ Again, current evidence reveals that rail rates are now much higher and have been rising. See NPRM at 8; Borsuk V.S. at ¶ 17; Dixon V.S. at ¶ 24.

Finally, a key distinction between the original exemption decision and the revocation proposed in the NPRM is that ISRI supported the exemption of ferrous scrap in 1994, but now is in favor of revocation. Combined with the other evidence put into the record by the Board and ISRI, the support of scrap dealers for the rule change proposed in the NPRM shows that revocation is warranted. "In determining whether regulation is necessary to protect shippers from an abuse of market power, a significant consideration is whether the participating shippers actually seeking transportation are concerned about an abuse of market power." Rail General Exemption Authority – Petition of AAR to Exempt Rail Transportation of Selected Commodity Groups, 9 ICC.2d 969, 973 (1993).

⁵⁴ Petition to Exempt, Verified Statement of Paul Posey at p. 4.

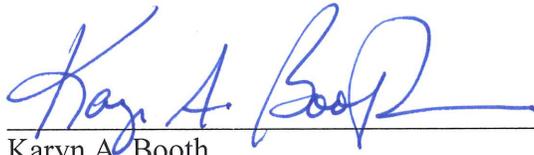
VI. CONCLUSION

For the foregoing reasons, ISRI respectfully requests that the Board adopt its current proposal to revoke the existing class exemption for iron or steel scrap.

Respectfully submitted,

THE INSTITUTE OF SCRAP RECYCLING INDUSTRIES,
INC.

By its attorneys:



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Dated: August 26, 2016

EXHIBIT 1

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

Ex Parte 704 (Sub-No. 1)

REVIEW OF COMMODITY, BOXCAR, AND TOFC/COFC EXEMPTIONS

VERIFIED STATEMENT OF DAVID J. BORSUK

I. Introduction.

1. My name is David J. Borsuk and I am the Manager of Industrial Marketing and Environmental Affairs for Sadoff Iron & Metal Company (“Sadoff”). Sadoff engages in scrap metal recycling of ferrous scrap and non-ferrous metals, automobile salvage, electronics recycling, and other related activities from nine (9) locations in Wisconsin and Nebraska. Chairman Daniel R. Elliott III of the Surface Transportation Board (“STB”) visited the Sadoff facility in Fond du Lac, Wisconsin several years ago.

2. Sadoff is a third-generation, family-owned business with its headquarters in Fond du Lac, Wisconsin. In this Verified Statement (“V.S.”), I will focus on Sadoff’s ferrous scrap and recycling business.

3. Sadoff obtains ferrous scrap through direct purchases, its automobile salvage, and other means. This scrap must be prepared, processed, and sorted at a Sadoff facility before it can be sold. Sadoff sells the ferrous scrap to electric arc furnace steel mills (a.k.a., mini-mills), foundries, and other scrap consumers. Sadoff arranges transportation both for inbound shipments of raw scrap materials and outbound shipments of scrap after processing.

4. In my role as the Manager of Industrial Marketing and Environmental Affairs for Sadoff, I am responsible for purchasing and selling ferrous scrap and overseeing regulatory

issues. I have worked in my current position at Sadoff for 25 years. Prior to assuming my current role, I was the Sadoff Steel Service Center Manager and MRO Purchasing Manager amongst other roles during the 46 years that I have been with Sadoff. I have a B.A. degree from the University of Wisconsin – Madison.

5. I am submitting this V.S. in support of the Reply Comments filed by The Institute of Scrap Recycling Industries, Inc. (“ISRI”) in the above-captioned proceeding at the STB. Sadoff is a member of ISRI.

6. I understand that various railroad parties in this proceeding have made assertions about the ferrous scrap market and the transportation of ferrous scrap. I understand that they have specifically asserted that ferrous scrap can readily be transported by truck or water instead of by rail, and that there is ample geographic and product competition that reduces the railroads’ control over the transportation of this commodity. I respond to these assertions by describing the current state of the ferrous scrap industry, with a focus on transportation issues.

II. Ferrous Scrap Industry Overview.

7. The ferrous scrap market is not as simplistic as the railroads have asserted in their comments. One key point to understand is that all ferrous scrap is not interchangeable with all other ferrous scrap. Instead, specifications are utilized to grade ferrous scrap and these specifications govern the purchase, processing, and sale of ferrous scrap.

8. Similarly, not all buyers (consumers) of ferrous scrap are the same. They have different raw material needs based on the finished products that they manufacture. Thus, a scrap dealer cannot simply substitute one type of ferrous scrap for another and, typically, a ferrous scrap dealer is contractually obligated to deliver a specific grade of ferrous scrap to its customers. For example, a mill that manufactures steel sheet products will purchase a certain

grade of ferrous scrap and would not be interested in the ferrous scrap used to produce round bars of steel. In other words, the demand for ferrous scrap at any one point in time is often determined by the finished products that will be manufactured by the buyers of ferrous scrap.

9. The railroads assert that shipments of ferrous scrap tend to be regional or local in nature due to the emergence of mini-mills. However, as noted, the scrap market is highly susceptible to supply and demand, and any one area of the United States may have a surplus or deficit in particular specifications or grades of ferrous scrap that are needed in that same area by the mills, foundries, and other consumers of ferrous scrap. These areas of surplus and deficit fluctuate and change over time, though they can also persist for longer periods. When there is a deficit in the local supply of ferrous scrap, it is necessary to secure the commodity from other non-local sources; the transportation between these areas usually occurs by rail due to the long distances involved.

10. For example, there are many automobile sheet mills in Alabama, Mississippi, and Arkansas that have a high demand for No. 1 grades of ferrous scrap. This demand exceeds the supply of such ferrous scrap in the area, meaning that No. 1 grades of ferrous scrap must be transported long distances to these automobile sheet mills. In contrast, the Chicago area and the Upper Midwest area more often have surpluses of No. 1 grades of ferrous scrap. Also, for various reasons, Canada currently has a very large surplus of No. 1 grades.

III. Overview of Transportation in the Ferrous Scrap Industry.

11. Transportation is an important component of any ferrous scrap transaction. This includes both the transportation from the ferrous scrap producer to the dealer/processor and also the transportation from the dealer/processor to the consumer.

12. Gondola cars are utilized for rail transportation of ferrous scrap. Each gondola can carry the same amount of ferrous scrap as four or even four-and-a-half trucks. The large number of trucks needed to replace just a few gondola cars means that rail transportation provides economies of scale and is more feasible when a large or even moderate volume of ferrous scrap needs to be shipped. It is not always easy to find a dozen or more idle scrap-hauling trucks when needed. Rail transportation is also strongly preferred and is more economical for long-distance ferrous scrap shipments.

13. Sales of ferrous scrap from dealers to steel mills generally occur pursuant to 30-day contracts. These contracts are often negotiated at the start of the month and then entered toward the end of the first week of the month. The contracts typically include an obligation to ship a particular volume of a specific grade of ferrous scrap at an agreed-upon price. The dealer often is responsible to arrange for transportation of the required volume of scrap materials for the remainder of the month. If the material is not shipped by the end of the month, the contract will expire unless the steel mill agrees to extend it, which is dictated by the market prices for the commodity, i.e., a steel mill would likely extend only if the market price is increasing for the desired grades of scrap. Also, some steel mills may prefer rail deliveries over truck based on the unloading/loading configurations at their facilities.

14. The tight timing involved in these 30-day steel mill contracts means that scrap dealers seeking to fulfill such contracts need to secure the required volume of the specified grade of scrap, and need gondola cars provided in a timely manner by the serving railroad(s). However, scrap dealers often experience shortages in the number of gondolas needed and have little negotiating leverage with the serving railroad to address this concern.

15. Other types of contracts are relevant to a consideration of transportation issues. For example, it is not unusual for a ferrous scrap consumer to have an exclusive supply contract with a single scrap dealer/processor. Pursuant to this type of exclusive contract, the dealer must meet the consumer's needs with consistent, on-time deliveries so that the mill or foundry can continue operating.

IV. Railroad Transportation, Rates, and Service in the Ferrous Scrap Industry.

16. Rail transportation is a crucial component of the ferrous scrap supply chain from producers to dealers to consumers.

17. Rates for rail transportation of ferrous scrap have increased substantially over the past ten years, and surcharges are now utilized more frequently by the railroads.

18. Rail transportation rates are generally provided by railroads with no negotiation. The rate is simply the rate, and a scrap dealer has no ability to negotiate it. In many cases, railroads have pre-established "zone pricing," thereby preempting attempts to engage in negotiation.

19. Sadoff has service from only one railroad at each of its four (4) rail-served facilities.

20. Many ferrous scrap consumers such as mills operate "just-in-time" supply chains. This means that ferrous scrap dealers such as Sadoff must be sensitive to time constraints on both their inbound and outbound scrap shipments to meet the consistent, on-time delivery needs of their customers.

21. Rail service quality has declined over the past ten or more years. For example, one of Sadoff's Nebraska locations recently had its switch frequency reduced by the local

railroad from twice per week to once per week – causing an immediate 50% decline in the facility’s rail receiving and shipping capacity.

22. Another Sadoff location previously received rail service from the Wisconsin Central Railroad. When that railroad was acquired, the acquiring railroad plainly informed Sadoff that it should not expect the same quality of rail service in the future. This prediction proved accurate; service quality decreased and rail rates increased after the acquisition.

23. If rail service is poor, then a scrap dealer will need to use trucks at a higher cost in order to meet its obligations to its customers (mills, foundries, etc.). The potential use of trucks has not led to improved rail service or lower rail rates.

V. Car Supply.

24. As mentioned above, rail transportation of ferrous scrap requires use of gondola rail cars. Consistent, reliable, and timely rail car supply is critical for the ferrous scrap industry.

25. When ISRI originally supported the exemption of ferrous scrap in 1994, part of the scrap industry’s reasoning was that the exemption would reduce railroad costs so that railroads would have more funds available for capital investment. In my experience, however, railroads have not adequately invested in their gondola fleets for many years. The timely supply of sufficient gondola cars is a constant issue in the ferrous scrap industry.

26. Years ago, railroads allowed scrap shippers to use foreign railroads’ gondola cars to ship scrap. These cars were called “free running.” This practice has largely ceased, however, meaning that foreign cars must be returned empty to the owning railroad. The cessation of this practice has further restricted supply of gondolas for the ferrous scrap industry and sometimes forces scrap shippers to use trucks at a higher cost, even when their preference would be to ship their ferrous scrap via rail.

VI. Truck Competition.

27. I understand that the railroad parties have asserted that truck transportation provides ample competition for rail transportation of ferrous scrap. This is a significant overstatement.

28. Sadoff is both a dealer and processor of ferrous scrap and, thus, arranges both inbound and outbound transportation. Sadoff utilizes both rail transportation and truck transportation for its shipping needs but certain shipment types rely heavily on rail transportation and, for these shipments, truck transportation is not competitive with rail. The shipments that rely heavily on rail are those of larger volumes, longer distances, and/or where Sadoff's customer specifically requests rail transportation. Trucks are generally used for short-distance, low-volume movements, or for deliveries to and/or from facilities that do not have rail access.

29. Inbound shipments of raw scrap to the Sadoff scrap facilities in Wisconsin and Nebraska regularly originate in 35 different states. Many of these shipments are far longer than the short distances required for truck service to be competitive with rail.

30. For example, inbound shipments of raw scrap to Sadoff facilities in Nebraska originate not just in Nebraska, but also in other states such as Colorado, Oklahoma, and Texas. The distances involved are frequently far too lengthy for truck transportation to be competitive with rail.

31. Scrap shipments must normally be both short in distance and small in volume for trucks to be competitive with rail transportation. Transloading is virtually never an option either, due to the dramatic costs involved in a transload movement.

32. A number of other limitations hamper truck transportation. If a scrap dealer has several large volume movements that need to be shipped in a given week, rail must be utilized;

dozens or hundreds of idle, empty trucks are generally not available in a timely manner at individual dealer locations.

33. Truck supply and pricing is also limited based on the time of year and the particular transportation marketplace surrounding each scrap dealer. For example, many motor carriers are very busy hauling grain during harvest season in certain areas of the country. Others are busy hauling sand during construction season, or hauling salt during the winter.

34. Truck supply is also limited by seemingly persistent driver shortages.

VII. Water Transportation.

35. I understand that some railroad parties have also asserted that water transportation provides effective competition to rail transportation of ferrous scrap. This is also a dramatic overstatement.

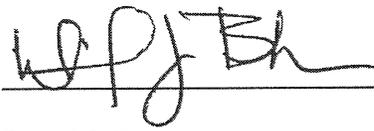
36. Water transportation is limited in the movement of ferrous scrap because few scrap transactions involve sale of a sufficient scrap quantity from a seller to a buyer where both are located on navigable waterways. As I mentioned earlier, transloading does not customarily occur in the ferrous scrap marketplace due to the high costs involved.

37. For water transportation to be considered competitive with rail, the shipment must generally be from a water-accessible seller to a water-accessible buyer (where there is a feasible connection between the two waterways), and the quantity involved must warrant use of a barge.

38. Additionally, water transportation is limited by barge availability, seasonal river depth concerns (which sometimes occur in the summer or during droughts), grain-hauling needs, and winter-time freezing of waterways.

VERIFICATION

I, David J. Borsuk, verify under penalty of perjury that I have read the foregoing Verified Statement, that I know the contents thereof, and that the same are true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this statement.

A handwritten signature in black ink, appearing to read 'DJB', is written over a horizontal line.

David J. Borsuk

EXHIBIT 2

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

Ex Parte 704 (Sub-No. 1)

REVIEW OF COMMODITY, BOXCAR, AND TOFC/COFC EXEMPTIONS

VERIFIED STATEMENT OF GREG DIXON

I. Introduction.

1. My name is Greg Dixon and I am the CEO for Smart Recycling Management LLC (“SRM”). SRM engages in Brokering and Industrial Management. SRM operates from 1 location in Kentucky, with its headquarters in Nicholasville, Kentucky.

2. In my role as the CEO for SRM, I am responsible for developing and implementing high level strategies along with managing the overall operations and resources of the company. SRM deals with many yards throughout the United States dealing with sales and transportation both within the US and exporting out of the US. I have worked in my current position at SRM for 3 years. Prior to assuming my current role, I was the General Manager at Baker Iron & Metal, overseeing 2 yards and assisting in sales for 5 yards in 3 states. My educational background is in Business Administration in which I have a Bachelor’s Degree.

3. I am submitting this Verified Statement (“V.S.”) in support of the Reply Comments filed by The Institute of Scrap Recycling Industries, Inc. (“ISRI”) in the above-captioned proceeding at the STB. SRM is a member of ISRI.

4. I understand that certain railroad parties in this proceeding have asserted that truck and water transportation provide significant competition to rail transportation of ferrous scrap. I also understand that some commenting parties have asserted that competition exists in

the ferrous scrap industry because substitute products can be used or because shippers can use different locations to create competition. In this V.S., I will describe the current state of the ferrous scrap industry, the role of rail transportation, and the extent of competition to rail transportation of ferrous scrap.

II. Overview of the Ferrous Scrap Industry.

5. The ferrous scrap industry is primarily a demand-driven industry, meaning that the demand for ferrous scrap determines exactly what is needed and where it needs to go. Thus, most of the time, supply exceeds demand. Occasionally, the demand exceeds the supply, creating a situation where scrap suppliers (dealers) have the upper hand, but most of the time the consumers such as steel mills (mini-mills) determine the state of the market.

6. Assertions that the ferrous scrap market is regional in nature are based on the faulty assumption that all demand for ferrous scrap is consistent and equal at all times throughout the marketplace. This is not the case. Purchasing by consumers such as steel mills is extremely inconsistent. A particular mill may buy thousands of tons of ferrous scrap one month, and then none the next month.

7. Regional dynamics do play a role in the ferrous scrap industry, but it would be incorrect to say that regional considerations dominate or that all ferrous scrap transportation is short-haul. The demand side must be considered also. For example, a local steel mill just a few miles from a scrap dealer may have no demand for an extended period of time for the type or specific grade of local ferrous scrap in stock at a nearby dealer. In such a scenario, the scrap dealer must sell its processed ferrous scrap to where the demand is located – which could be hundreds of miles away.

8. Another example highlights the demand-based nature of the ferrous scrap industry. Until two years ago, an independent Kentucky steel mill known as Gallatin Steel frequently purchased local ferrous scrap. After Gallatin was acquired by a large steelmaker (Nucor) in 2014, local ferrous scrap purchases ceased, meaning that scrap dealers in the area had to find new markets for their supply.

9. Scrap dealers must constantly adapt and change to meet varying demand. Scrap dealers do not and cannot control the market or the demand that exists.

10. The proliferation of mini-mills over the past several decades has changed the market in some ways, but it has not caused a reduction in railroad market power. Virtually no ferrous scrap dealer can sell all its product to a single consumer; instead, dealers must follow the demand.

11. Over the past several years, steel production in the U.S. has decreased from over 100 million metric tons to less than 90 million metric tons. This decrease has reduced steel mills' consumption of ferrous scrap and, again, reinforces the demand-driven nature of the ferrous scrap industry.

III. Specifications in the Ferrous Scrap Industry.

12. I understand that some railroads have alleged that the ability to engage in product substitution means that railroads have limited or minimal market power over transportation of ferrous scrap. Such an allegation is overly simplistic and reflects a lack of understanding of the ferrous scrap industry.

13. Not all ferrous scrap is the same; detailed specifications are utilized to describe the different kinds and types of ferrous scrap that exist. Moreover, the steel mills and other consumers of ferrous scrap have specific product needs and requirements. A scrap dealer cannot

ship a ferrous scrap product with different specifications from those in the governing order or contract. Scrap dealers must abide by the terms of specific contracts; they cannot deviate from those terms.

IV. Scrap Dealers with Multiple Locations Cannot Force Competition to Exist.

14. Railroad market power exists even when a ferrous scrap dealer has several different locations from which it operates.

15. If a scrap dealer has certain processed scrap at a specific location, then the ability to ship similar product to a consumer from a different location does not help the scrap dealer with respect to the first location. At some point, the processed scrap at the first location must be sold in order for the scrap dealer to remain in business.

16. The ability to ship processed scrap from one dealer location to a second location owned by the same dealer is also not of help due to the excessive transportation costs involved. A scrap dealer cannot pay for two transportation movements just to obtain one sale.

17. Moreover, processed scrap cannot be held for long periods of time as it would trigger a need for extensive credit from lending banks.

V. Truck Transportation in the Ferrous Scrap Industry.

18. Truck transportation is utilized in the ferrous scrap industry, but there is a large amount of ferrous scrap transportation that is rail-dependent. Truck transportation is best for short movements and for small-volume shippers.

19. In my company's selection of transportation mode, cost and timing are the two key factors. The average truck haul is usually around 125 to 150 miles. Longer transportation movements are generally too costly for truck transportation to be competitive with rail.

20. The volume of a given movement is also important. The average ferrous scrap truck holds approximately 20 to 22 tons, while the average rail car holds 80 to 85 tons. If a ferrous scrap dealer has a large order to fill, then rail transportation is often the only viable option because it is infeasible to simultaneously find a large number of trucks for the needed transportation.

21. Other factors limit the possibility of using truck transportation. The well-known driver shortage has had an impact on motor carriers, affecting their capacity and increasing their costs. For longer hauls, use of truck transportation often requires more than one driver due to hours-of-service rules, which also impacts the availability and cost of the service.

VI. Other Possible Competition to Rail Transportation in the Ferrous Scrap Industry.

22. Rail-to-rail competition is extremely rare for ferrous scrap dealers because very few have direct service from more than one railroad.

23. Options such as import/export and/or water transportation are very limited also. Approximately 85% of ISRI members do not have access to either a river or ocean. In fact, very few have ocean access. Barge freight has become quite expensive over the last several years. The number of barges is limited and they can be difficult to obtain during grain harvest season.

VII. Railroad Transportation Rates.

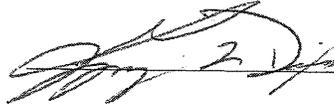
24. Rail transportation rates have significantly increased over the past two decades. Moreover, the concept of price negotiation no longer exists. Approximately 15-20 years ago, railroads engaged in rate negotiations, gave price breaks occasionally, and engaged in volume-based pricing. Now, no negotiation exists. Transportation rates are typically provided without discussion or debate on a take-it-or-leave-it basis.

VIII. Conclusion.

25. We support revocation of the ferrous scrap commodity exemption by the Surface Transportation Board for many reasons, including the need for rail transportation of ferrous scrap, the lack of sufficient competitive alternatives, the inability of ferrous scrap shippers to negotiate rates and terms with railroads, problems we have had in obtaining sufficient gondola cars from the railroads, and the railroads' dominant position in the market.

VERIFICATION

I, Greg Dixon, verify under penalty of perjury that I have read the foregoing Verified Statement, that I know the contents thereof, and that the same are true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this statement.



Greg Dixon

EXHIBIT 3

BEFORE THE
SURFACE TRANSPORTATION BOARD

Ex Parte No. 704 (Sub-No. 1)

REVIEW OF COMMODITY, BOXCAR, AND TOFC/COFC EXEMPTIONS

REBUTTAL VERIFIED STATEMENT

of

HENRY JULIAN ROMAN

August 25, 2016

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Ex Parte No. 704 (Sub-No. 1)

REVIEW OF COMMODITY, BOXCAR, AND TOFC/COFC EXEMPTIONS

REBUTTAL STATEMENT

of

HENRY JULIAN ROMAN

I. INTRODUCTION

My name is Henry Julian Roman (Jay Roman). I am President of Escalation Consultants, Inc., which is located at 4 Professional Drive Suite 129, Gaithersburg, MD 20879. Escalation Consultants is a consulting firm engaged in economic analysis and consultation related to prices and price movement for shipping products by rail. Since founding Escalation Consultants in 1979, I have assisted a large number of companies in analyzing the best options for their rail traffic and in controlling the cost of rail transportation.

I regularly perform studies of rail rates for companies with movements in the U.S. and Canada. Some of the industries I work with are: Coal, Chemicals, Petroleum, Automobile, Grain, Steel, Fertilizer, Farm and Food Products, Paper Products and Forest Products. I am knowledgeable about the current cost of rail transportation in the marketplace as I annually assist companies in rail negotiations and bid evaluations totaling more than a billion dollars in rail spend.

I have testified as an expert on pricing issues involving coal and rail transportation issues before the U.S. Federal Energy Regulatory Commission, in federal courts, in state courts, before the National Energy Board of Canada, and in arbitration proceedings in the U.S. and Canada as well as before the U.S. Surface Transportation Board (“STB” or “Board”). I previously issued a verified statement in this proceeding in support of the American Forest & Paper Association Comments submitted in this proceeding on July 26, 2016. My curriculum vitae is attached to my prior testimony in Appendix A.

II. DESCRIPTIONS OF TASKS ASSIGNED

The American Forest & Paper Association and the Institute of Scrap Recycling Industries, Inc. asked me to analyze the verified statement of Dr. Mark Israel and Mr. Jonathan Orszag (“Israel/Orszag”) which was submitted to the STB in support of the Association of American Railroads (“AAR”) assertion that Revenue to Variable Cost (R/VC) ratios do not accurately measure the market power of railroads.

My analysis of the Israel/Orszag testimony focused on the data and underlying analysis used to generate Table III.1 and Table III.2 on pages 15 and 16 of their testimony and the conclusions they reached based on the two tables. The claimed purpose for each of these tables in the Israel/Orszag testimony is as follows.

Table III.1 - This table was used to demonstrate that R/VCs (and the 180% R/VC statutory benchmark in particular) is not a reliable indicator of market power.

Table III.2 - This table was used to demonstrate that R/VC ratios do not consistently fall in cases where competition has increased.

III. CONCLUSIONS FROM ANALYSIS

My analysis of the footnotes (shown on pages 15 and 16) that describe how Tables III.1 and III.2 were assembled and the underlying support provided by Dr. Israel and Mr. Orszag for these tables demonstrates the following:

- **Dr. Israel's and Mr. Orszag's conclusion that R/VC ratios do not accurately measure railroad market power is inaccurate because the R/VC ratio fluctuations shown in Tables III.1 and III.2 of their testimony have more to do with problems in how the tables were compiled than they do with how accurate R/VC ratios measure competition for rail movements.**
- **The Israel/Orszag analysis mixes up which rail moves are captive and which are competitive and this results in R/VC ratios that make little sense. This is the fundamental problem with the methodology used to calculate the information in Tables III.1 and III.2 in their testimony.**

IV. ANALYSIS OF TABLE III.1: JOINTLY-SERVED DESTINATIONS WITH R/VC RATIOS ABOVE 180%

Dr. Israel and Mr. Orszag use Table III.1 on page 15 of their testimony to show that R/VC ratios and the 180% statutory benchmark in particular, is not a reliable indicator of railroad market power because that benchmark can result in routes with significant competition as having R/VC ratios above 180% and, thus, such routes would improperly be considered to be subject to railroad market power. Table III.1 is used to show that jointly served STCC-destination combinations have one or both railroads with R/VC ratios above 180% for the same commodity. Dr. Israel and Mr. Orszag, therefore, reached the conclusion that because R/VC ratios are above

and below 180% at stations which are shown as competitive in his analysis, the R/VC for a movement is not indicative of the level of competition for a movement.

My analysis of the manner in which they performed their analysis demonstrates that a major reason for R/VC ratios being above and below 180% is not that R/VC ratios do not accurately measure a railroad's market power for a movement. Instead the underlying support for Table III.1 demonstrates that the way the Israel/Orszag analysis was performed causes the R/VC ratios at the STCC-destination combinations to, by default, have R/VC ratios both above and below 180%. The problem is, therefore, not with the R/VC ratios but with the analysis that was performed to generate the R/VC data included in Table III.1. The following issues demonstrate the problems with the Israel/Orszag analysis and the conclusions reached from Table III.1.

Issue 1: The footnote beneath Table III.1 on page 15 of their testimony shows that the analysis was only performed based on competition at the destination station.¹ The results in this table, therefore, only consider competition for commodities at the destination for movements. However, the level of the R/VC for a movement is often determined by whether the origin for a commodity is captive to a single railroad. For example, if most origins for a commodity in an area are captive to one railroad, the degree of competition at a destination is frequently meaningless. Sodium Compounds (STCC 28123) moves, which are included in Table III.1, are a good example of this, as almost all origins of this commodity are captive to one railroad and the rates are developed accordingly.² Origin competition can be the most significant factor in determining the

¹ The footnote for Table III.1 states "STCC-Destination pairs with 2+ terminating RRs over 2000-2014 period; highest-volume terminating carrier up to 80%, second highest-volume terminating carrier at least 20%; 6000+ total carloads; and excludes intermodal and gateways (e.g. Chicago, St. Louis)."

² Sodium Compounds (STCC 28123) moves are included in the Table III.1 results and almost all origins for this commodity are captive to a single railroad.

level of an R/VC ratio and, because Table III.1 does not consider the origin for movements, this distorts the summary R/VC results and makes conclusions reached from those results inaccurate.

Issue 2: Table III.1 includes Chlorine (STCC 28128) and Anhydrous Ammonia (STCC 28198) and these are Toxic Inhalation Hazardous Material movements (“TIH Moves”). Due to the railroads’ well known potential liability concerns with TIH Moves they will normally have very high R/VC ratios regardless of the competition at a destination. This type of hazardous move needs to be excluded from any analysis as to how accurately R/VC ratios measure market power for such movements, because the R/VC ratios for these types of moves have more to do with potential liability than the level of competition for movements.

Issue 3: Table III.1 assumes that if two railroads have moves on the Waybill out of a station for a five-digit Commodity Code (STCC) this means that all industries served from that station for a type of commodity have access to both railroads. Though this can be a reasonably accurate assumption for moves terminating at a small rail station, this is simply not an accurate assumption to make in assessing competition at large rail stations. For example, Houston TX has by far the largest number of carloads (1,664,109) terminating at a station in the Israel/Orszag analysis based on the supporting data underlying Table III.1. Houston TX is a very large station that has a large number of industries served out of this station and some industries are captive to one railroad, while others have access to two railroads.

The Israel/Orszag analysis assumes that if there is more than one railroad shipping a commodity at the five-digit STCC level into a large station like Houston, then this means there is competition for all movements of this commodity at the station.

However, he does not consider that by including large stations in his analysis he is capturing R/VC ratios for movements that terminate at both captive and competitive industries served out of a station like Houston TX.

Issue 4: Because commodity shipments at large stations in the Israel/Orszag analysis are summarized at the five-digit Commodity Code level and not the seven-digit level, this exacerbates the problem with mixing up captive and competitive industries at rail stations. There will be a large number of R/VC's for captive moves being shown as R/VC's for competitive moves when data is summarized at the five-digit STCC level at large stations. For example, five-digit STCC 28211 for Plastic Materials has thirty-five (35) seven-digit codes that make up its values and there are 907,000 Plastic moves included in Table III.1. Different captive and competitive industries served out of a station can receive different types of Plastics and accumulating data at the seven-digit STCC will show this. Because Dr. Israel only summarized data at the five-digit STCC level he combines all Plastic shipments together and never accounts for some types of Plastics going to captive industries, while other types of Plastics go to competitive industries at a station like Houston. The five-digit STCC issue is significant as large stations represent the largest number of records used in Table III.1. Stations with more than 200,000 carloads represent 13.5 million carloads or 54.4% of the total carloads used to calculate the values in Table III.1.

Issue 5: The footnote to Table III.1 states that the table eliminates gateways (e.g., Chicago and St. Louis). However, the support provided for the table shows that it includes movements shown as terminating at large gateways like Kansas City KS, Birmingham AL, Buffalo NY, Salem IL and Brownsville TX. These are large gateways and many of these moves are logically Rule 11 moves that are not terminating at these gateways. This is a significant problem with Table III.1 because, in my experience, the R/VC ratios for Rule 11 moves at a gateway/station are normally different than R/VC's for through moves that terminate at a captive industry served by a gateway/station.

There are 680,572 carloads shown as terminating at these five gateways in the support for Table III.1 and this has distorted the Israel/Orszag R/VC results and led to inaccurate conclusions about the accuracy of R/VC ratios as a measure of competition for rail movements.

V. SUMMARY OF PROBLEMS WITH TABLE III.1

There are a number of problems with the support used to calculate Table III.1. Based upon my analysis, I find that the major reason for R/VC fluctuations in rail moves which Dr. Israel and Mr. Orszag show as being competitive in Table III.1 is that their analysis does not control for competitive shipments correctly. If you perform an analysis that mixes up which moves are captive and which are competitive you will get R/VC ratios that make little sense. This is the problem with the analysis used to calculate the R/VC results in Tables III.1. My analysis of Table III.1 demonstrates that the problems with the way Dr. Israel and Mr. Orszag performed their data analysis have resulted in improper conclusions about the reliability of R/VC ratios to reasonably measure the degree of competition for rail movements.

VI. ANALYSIS OF TABLE III.2 – CHANGE IN R/VC RATIOS ON SOLE-TO-DUAL ROUTE-COMMODITY COMBINATIONS

Table III.2 on page 16 of the Israel/Orszag testimony includes a summary of R/VC ratios for rail movements that went from sole-served (by Conrail) to dual served (by CSXT and NS) after the Conrail acquisition transaction. Dr. Israel and Mr. Orszag assert that R/VC ratios are not a reliable indicator of market power because the R/VCs for these movements do not fall as they should with the introduction of competition.

It is difficult to comment on the accuracy of the results in Table III.2 as I found no data, documentation or other information that would support the analysis or the results for anything in this table based on my review of the underlying data provided by witnesses.³ Due to the lack of support, I do not know the base year for the changes in Table III.2. In addition, I do not know the answers to the following issues to critique Table III.2:

- Whether Table III.2 is based on a sample of moves or all moves in the shared access area.
- The SPLC codes for moves used to calculate Table III.2.
- Whether the STCCs for RVCs in the base year are different from the STCC's for RVC's in 2014. The analysis does not appear to consider the STCCs for the R/VC changes it is measuring and if that is the case, R/VC ratios will change for reasons other than railroad's market power over this traffic.
- The mileage and STCCs for movements are needed to determine if movements in Table III.2 in the base time frame were actually captive to Conrail or whether

³ Numbers for the table were value copied in the support provided. The source for these values was not provided.

Conrail's R/VCs for movements were low because it needed to compete against truck or lake vessel competition.

- Whether both the origins and destinations for all movements are for Conrail sole served points pre-merger and NS and CSXT competitive points within the shared access area after the merger.

Without the type of information referenced above, it is difficult to critique the results of Table III.2 in the Israel/Orszag testimony in detail. However, based upon my analysis of Table III.1, I would expect that Table III.2 includes the R/VC results for TIH movements and other hazardous material movements which can have R/VCs determined more from liability concerns than rail competition.

It also needs to be emphasized that rail rates have increased dramatically since the year of 2001 and this has resulted in higher R/VC ratios for both captive and competitive rail traffic. As shown in my July 21st testimony for AF&PA⁴, the average revenue per car, using the AAR's own numbers, increased 102% between 2001 and 2014. This dramatic increase in rail rates logically results in R/VCs increasing for both captive and competitive traffic. Based upon the market power NS and CSXT have been able to exert in the marketplace it is logical that the R/VCs for their moves in the shared access area would also increase.

⁴ Page 7 of Roman Testimony for AF&PA.

Rail rates have increased 3.5 times more than long haul truck rates since 2004⁵, so it is logical that the R/VCs for truck competitive traffic on Conrail would have had substantial increases by 2014 on CSXT and NS.

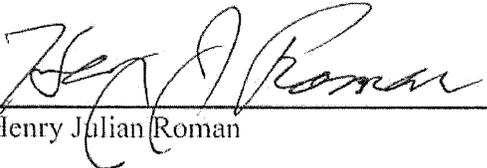
VII. SUMMARY OF PROBLEMS WITH TABLE III.2

Fundamental questions exist regarding the conclusions drawn by Dr. Israel and Mr. Orszag from Table III.2 and, due to the lack of documentation supporting the table, a complete analysis of the data in Table III.2 is impossible. Nonetheless, it is undoubtedly true that rail rates have increased substantially since 2001. The fact that railroads' R/VC ratios have increased with rate increases of 102% between 2001 and 2014 is logically an outcome resulting from the large rate increases NS and CSXT have been able to obtain from their customers. To then turn around and use the large rate increases railroads have been able to obtain from their customers as a reason for not removing the exemption of a commodity is simply counterintuitive.

⁵ Page 9 of Roman Testimony for AF&PA.

VERIFICATION

I, Henry Julian Roman, verify under penalty of perjury that I have read this Verified Statement, that I know the contents thereof, and that the same are true and correct based on my knowledge, information and belief. Further, I certify that I am qualified and authorized to file this Statement.


Henry Julian Roman

Executed on 8/25/2016

EXHIBIT 4



August 26, 2016

Surface Transportation Board
c/o William H. Johnson
395 E. Street S.W.
Washington D.C. 20423

RE: Thank You

To whom it may concern:

On behalf of Pacific Steel and Recycling, I wish to thank the Surface Transportation Board for your influential rulemakings associated with improving rail-competition. The effort has resulted in a potential benefit for Agriculture and Scrap Metal Recycling industries by providing processors affordable administrative remedies rather than expensive litigation.

Sincerely,

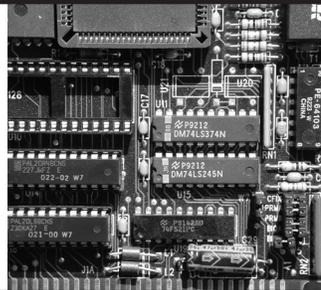
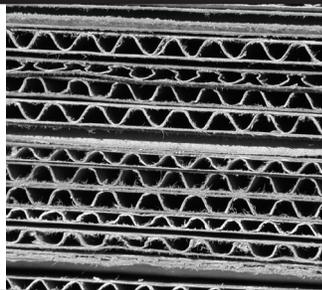
A handwritten signature in blue ink that reads 'Kirby Farner'.

Kirby Farner
H.S.E.T. Director
Pacific Steel and Recycling

c: Ken Halko, Vice-President, Ferrous Processing & Trading (PS&R)

EXHIBIT 5

SCRAP SPECIFICATIONS CIRCULAR



2016

**GUIDELINES FOR NONFERROUS SCRAP • FERROUS SCRAP • GLASS CULLET
PAPER STOCK • PLASTIC SCRAP • ELECTRONICS SCRAP • TIRE SCRAP**

EFFECTIVE 1/21/2016



**Institute of
Scrap Recycling
Industries, Inc.**

Voice of the Recycling Industry™

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Guidelines for
Nonferrous Scrap
Ferrous Scrap
Glass Cullet
Paper Stock
Plastic Scrap
Electronics Scrap
Tire Scrap

EFFECTIVE 1/21/2016



Voice of the Recycling Industry™

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PREFACE

The standard specifications included in this Circular are intended to assist members in the buying and selling of their materials and products.

These specifications are derived from many sectors of the metals, paper stock, plastics, glass, and electronics industries and are constructed to represent the quality or composition of the materials bought and sold in the industry. The specifications are internationally accepted and are used throughout the world to trade the various commodities.

Parties to a transaction may specify particular variations or additions to these specifications as are suited for their specific transactions and for their individual convenience. Any deviation from the standard specifications, however, should be mutually agreed to and so stipulated in writing by the parties to the transactions.

ISRI maintains an Arbitration Service as a means of enabling members to settle differences between themselves or between one of them and a non-member.

In addition, the "Guidelines for Metals Transactions" contain supplementary information that will aid members in completing their business transactions. It is recommended that these Guidelines be reviewed and that members use them in conjunction with the actual specifications in the conduct of their business.

ISRI's *Scrap Specifications Circular* is posted in PDF format at least once per year on the ISRI web site. To ensure you have the most up-to-date version, visit www.isri.org/specs.

Issued by:



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CIRCULAR 2016 BECAME EFFECTIVE Jan. 21, 2016,
AND PREVAILS UNTIL SUPERSEDED.

Rules Governing the Procedures for the Addition, Amendment, or Withdrawal of Specifications

- 1.0 *Initiation of Request.* Any person may file a request to add, amend or withdraw a specification by submitting such request in writing to the ISRI President.
- 2.0 The President shall refer such request to the Chairman of ISRI's Specifications Committee (the "Committee"), with copies to:
 - A. ISRI's Officers;
 - B. The chairman of any ISRI Division and/or Committee that might be affected by the specification.
- 3.0 *Notice.* Following its receipt, notice of the request shall be inserted in the *ISRI Focus* and a daily national trade publication such as *American Metal Market*. Such notice shall state:
 - A. The date, time and place at which the request will be considered by the Committee;
 - B. That the proceeding at which the request will be considered shall be open to the public;
 - C. That interested parties may participate in the proceeding by personal appearance or by submitting written comments;
 - D. A summary of the specification and the matter to be considered at the hearing.
- 4.0 *Committee Action.* Following presentation by all interested parties, the Committee shall review the request and:
 - A. Act upon it immediately, as set forth in Section 4.1; or
 - B. Refer it to a subcommittee for review and recommendation for action by the full Committee at its next meeting.
- 4.1 The Committee shall summarize the positions advocated by the various parties interested in the request and recommend to ISRI's Board of Directors what action should be taken.
- 5.0 *Board of Directors Action.* The Board of Directors, at its quarterly meeting at which the report and recommendation of the Committee has been made, shall adopt, amend, or reject the recommendation or table it pending further review and recommendation by the Committee.
- 5.1 Notice of the action taken by the Board shall be given to all interested parties who actively participated in the Committee proceeding and any other persons who have requested in writing notice of the Board's action. Notice of said action also shall be inserted in the *ISRI Focus* following the Board meeting at which said action was taken.
- 6.0 *Appeal.* On or before thirty days after the date of the notice required in Section 5.1, any party may appeal the decision of the Board by written notice to the President. Said appeal shall state the reasons thereof and the requested action to be taken. Notice of said appeal shall be given in accordance with Section 3.0.
- 6.1 The appeal shall be heard by the Board at its next quarterly meeting following receipt thereof.
- 6.2 The appellant and all interested parties shall be given at least twenty days notice of the date, time and place of the hearing, and like notice shall be inserted in the *ISRI Focus* at least twenty days prior to the hearing.
- 6.3 At the hearing, the appellant and any other interested party may appear either in person or by written presentation and state their reasons for the appeal.
- 6.4 The Board, following said hearing, shall review and act upon the appeal request. Notice of the Board's action shall be given in accordance with Section 5.1.
- 7.0 *Records.* ISRI shall maintain for not less than five years following the date of termination of the proceedings, records of the original request, summaries of the deliberations and recommendations of the Committee, action of the Board, summaries of the appeal and final decision, if any, of the Board, together with the positions of interested parties, copies of notices sent to interested parties and inserted in the *ISRI Focus* and national trade publications, written statements, and the reasons for recommendation and final action by the Committee and the Board.
- 7.1 Said records shall be available for review by the public upon reasonable notice.

Guidelines for Nonferrous Scrap: NF-2016

Note: When the individual scrap grades in this Circular, denoted by the various code words, are used, an agreement between parties is also bound by the terms of "Apple" as it appears below, unless the terms and conditions of a specific contract provide otherwise, in which case the specific contractual provisions shall govern.

CODE ITEM

Apple Nonferrous Terms

- a. Delivery of more or less of the specified quantity up to 3 percent is permissible.
- b. A ton shall be understood to be 2,000 pounds, unless otherwise specified.
- c. If any portion of the goods covered by a contract are unshipped or undelivered within the time specified in a contract, then that portion is subject to cancellation by the buyer and/or the buyer has the right to hold the seller responsible for substantiated damages.
If, because of embargo and/or other conditions of force majeure, a delivery or shipment cannot be made by the time specified, the contract shall remain valid and shall be completed promptly upon lifting of the embargo and/or conditions of force majeure and the terms of said contract shall not be changed.
- d. If for any portion of a contract the buyer fails in a timely manner to open a Letter of Credit and/or fails to provide proper conveyance and/or shipping instructions as specified in the contract, then that portion is subject to cancellation by the seller and/or the seller has the right to hold the buyer responsible for substantiated damages.
If, because of embargo and/or other conditions of force majeure, a delivery or shipment cannot be made by the time specified, the contract shall remain valid and shall be completed promptly upon lifting of the embargo and/or conditions of force majeure and the terms of said contract shall not be changed.
- e. If a significant weight or quality difference is apparent, the seller should be notified promptly and, if requested, another weight or quality determination should be taken. Seller and/or buyer should be given the opportunity to appoint an independent surveyor or a representative to verify weights and/or quality.
For purposes of this section, the meaning of the word "significant" shall be determined by agreement between buyer and seller, depending on the commodities and their values.
- f. If it is mutually determined that goods delivered do not conform to the description specified in the contract, then the shipment is subject to rejection or downgrade.
Disposition of, replacement of, and/or financial adjustment for rejected material shall be subjected to mutual agreement between buyer and seller. Seller is responsible for freight costs.
Buyer is expected, however, to exert every effort to limit rejections only to that portion of the ship-

CODE ITEM

ment which is unsortable and to return the rejected portion promptly upon request, if government regulations permit.

RED METALS

Barley No. 1 COPPER WIRE

Shall consist of No. 1 bare, uncoated, unalloyed copper wire, not smaller than No. 16 B & S wire gauge. Green copper wire and hydraulically compacted material to be subject to agreement between buyer and seller.

Berry No. 1 COPPER WIRE

Shall consist of clean, untinned, uncoated, unalloyed copper wire and cable, not smaller than No. 16 B & S wire gauge, free of burnt wire which is brittle. Hydraulically briquetted copper subject to agreement.

Birch No. 2 COPPER WIRE

Shall consist of miscellaneous, unalloyed copper wire having a nominal 96% copper content (minimum 94%) as determined by electrolytic assay. Should be free of the following: Excessively leaded, tinned, soldered copper wire; brass and bronze wire; excessive oil content, iron, and non-metallics; copper wire from burning, containing insulation; hair wire; burnt wire which is brittle; and should be reasonably free of ash. Hydraulically briquetted copper subject to agreement.

Candy No. 1 HEAVY COPPER

Shall consist of clean, unalloyed, uncoated copper clippings, punchings, bus bars, commutator segments, and wire not less than 1/16 of an inch thick, free of burnt wire which is brittle; but may include clean copper tubing. Hydraulically briquetted copper subject to agreement.

Cliff No. 2 COPPER

Shall consist of miscellaneous, unalloyed copper scrap having a nominal 96% copper content (minimum 94%) as determined by electrolytic assay. Should be free of the following: Excessively leaded, tinned, soldered copper scrap; brasses and bronzes; excessive oil content, iron and non-metallics; copper tubing with other than copper connections or with sediment; copper wire from burning, containing insulation; hair wire; burnt wire which is brittle; and should be reasonably free of ash. Hydraulically briquetted copper subject to agreement.

Clove No. 1 COPPER WIRE NODULES

Shall consist of No. 1 bare, uncoated, unalloyed copper wire scrap nodules, chopped or shredded, free of tin, lead, zinc, aluminum, iron, other metallic impuri-

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ties, insulation, and other foreign contamination. Minimum copper 99%. Gauge smaller than No. 16 B & S wire and hydraulically compacted material subject to agreement between buyer and seller.

Cobra No. 2 COPPER WIRE NODULES

Shall consist of No. 2 unalloyed copper wire scrap nodules, chopped or shredded, minimum 97% copper. Maximum metal impurities not to exceed 0.50% aluminum and 1% each of other metals or insulation. Hydraulically compacted material subject to agreement between buyer and seller.

Cocoa COPPER WIRE NODULES

Shall consist of unalloyed copper wire scrap nodules, chopped or shredded, minimum 99% copper. Shall be free of excessive insulation and other non-metallics. Maximum metal impurities as follows:

Aluminum	.05%	Antimony	.01%
Tin	.25%	Iron	.05%
Nickel	.05%		

Hydraulically compacted material subject to agreement between buyer and seller.

Dream LIGHT COPPER

Shall consist of miscellaneous, unalloyed copper scrap having a nominal 92% copper content (minimum 88%) as determined by electrolytic assay and shall consist of sheet copper, gutters, downspouts, kettles, boilers, and similar scrap. Should be free of the following: Burnt hair wire; copper clad; plating racks; grindings; copper wire from burning, containing insulation; radiators and fire extinguishers; refrigerator units; electrotype shells; screening; excessively leaded, tinned, soldered scrap; brasses and bronzes; excessive oil, iron and non-metallics; and should be reasonably free of ash. Hydraulically briquetted copper subject to agreement. Any items excluded in this grade are also excluded in the higher grades above.

Drink REFINERY BRASS

Shall contain a minimum of 61.3% copper and maximum 5% iron and to consist of brass and bronze solids and turnings, and alloyed and contaminated copper scrap. Shall be free of insulated wire, grindings, electrotype shells and non-metallics. Hydraulically briquetted material subject to agreement.

Droid INSULATED COPPER WIRE SCRAP

Shall consist of No. 2 copper wire (see Birch) with various types of insulation. To be sold on a sample or recovery basis, subject to agreement between buyer and seller. Existence of jelly wire subject to agreement between buyer and seller.

Drove COPPER-BEARING SCRAP

Shall consist of miscellaneous copper-containing skimmings, grindings, ashes, iron brass and copper, residues and slags. Shall be free of insulated wires; copper chlorides; unprepared tangled material; large motors; pyrophoric material; asbestos brake linings; furnace bottoms; high lead materials; graphite crucibles; and noxious and explosive materials. Fine powdered material by agreement. Hydraulically briquetted material subject to agreement.

CODE ITEM**Druid INSULATED COPPER WIRE SCRAP**

Shall consist of No. 1 bare, uncoated, unalloyed copper wire (see Barley), not smaller than No. 16 B & S wire gauge (unless smaller wire gauge is mutually agreed upon), with various types of insulation. To be sold on sample or recovery basis, subject to agreement between buyer and seller.

Ebony COMPOSITION OR RED BRASS

Shall consist of red brass scrap, valves, machinery bearings and other machinery parts, including miscellaneous castings made of copper, tin, zinc, and/or lead. Shall be free of semi-red brass castings (78% to 81% copper); railroad car boxes and other similar high-lead alloys; cocks and faucets; closed water meters; gates; pot pieces; ingots and burned brass; aluminum, silicon, and manganese bronzes; iron and non-metallics. No piece to measure more than 12" over any one part or weigh over 100 lbs. Heavier pieces acceptable upon mutual agreement between buyer and seller.

Ebulent LEAD-FREE BISMUTH BRASS SOLIDS

Shall consist of scrap castings alloyed with copper, tin, bismuth, and zinc. Castings shall be free of leaded brass attachments and have less than 0.2% alloyed lead or as agreed between buyer and seller. Examples that meet this specification include, but are not limited to, CDA 89833/35/36/37/41/42 and 45.

Ecstatic LEAD-FREE BISMUTH BRASS TURNINGS

Shall consist of scrap borings and turnings alloyed with copper, tin, bismuth, and zinc. Turnings shall be unmixed and have less than 0.2% alloyed lead or as agreed between buyer and seller. Examples that meet this specification include, but are not limited to, CDA 89833/35/36/37/41/42 and 45.

Eland HIGH GRADE-LOW LEAD BRONZE/BRASS SOLIDS

It is recommended these materials be sold by analysis.

Elder GENUINE BABBITT-LINED BRASS BUSHINGS

Shall consist of red brass bushings and bearings from automobiles and other machinery, shall contain not less than 12% high tin-base babbitt, and shall be free of iron-backed bearings.

Elias HIGH LEAD BRONZE SOLIDS AND BORINGS

It is recommended that these materials be sold on sample or analysis.

Enerv RED BRASS COMPOSITION TURNINGS

Shall consist of turnings from red brass composition material and should be sold subject to sample or analysis.

Engel MACHINERY OR HARD BRASS SOLIDS

Shall have a copper content of not less than 75%, a tin content of not less than 6%, and a lead content of not less than 6% nor more than 11%, and total impurities, exclusive of zinc, antimony, and nickel of not more than 0.75%; the antimony content not to exceed 0.50%. Shall be free of lined and unlined standard red car boxes.

CODE	ITEM	CODE	ITEM
Erin	MACHINERY OR HARD BRASS BORINGS Shall have a copper content of not less than 75%, a tin content of not less than 6%, and a lead content of not less than 6% nor more than 11%, and the total impurities, exclusive of zinc, antimony, and nickel of not more than 0.75%; the antimony content not to exceed 0.50%.	Lake	BRASS SMALL ARMS AND RIFLE SHELLS, CLEAN FIRED Shall consist of clean fired 70/30 brass shells free of bullets, iron and any other foreign material. For material to be exported from the United States, all shells must be sufficiently mutilated to prevent reuse and reloading.
Fence	UNLINED STANDARD RED CAR BOXES (CLEAN JOURNALS) Shall consist of standard unlined and/or sweated railroad boxes and unlined and/or sweated car journal bearings, free of yellow boxes and iron-backed boxes.	Lamb	BRASS SMALL ARMS AND RIFLE SHELLS, CLEAN MUFFLED (POPPED) Shall consist of clean muffled (popped) 70/30 brass shells free of bullets, iron and any other foreign material. For material to be exported from the United States, all shells must be sufficiently mutilated to prevent reuse and reloading.
Ferry	LINED STANDARD RED CAR BOXES (LINED JOURNALS) Shall consist of standard babbitt-lined railroad boxes and/or babbitt-lined car journal bearings, free of yellow boxes and iron-backed boxes.	Lark	YELLOW BRASS PRIMER Shall consist of clean yellow brass primers, burnt or unburnt. Shall be free of iron, excessive dirt, corrosion and any other foreign material.
Grape	COCKS AND FAUCETS Shall consist of mixed clean red and yellow brass, including chrome or nickel-plated, free of gas cocks, beer faucets, and aluminum and zinc base die cast material, and to contain a minimum of 35% semi-red.	Maize	MIXED NEW NICKEL SILVER CLIPPINGS Shall consist of one or more nickel silver alloys and the range of nickel content to be specified, free of chrome or any other plating material. Leaded nickel silver clippings should be packed and sold separately. Not to contain more than 10% of clean punchings under 1/4 inch.
Honey	YELLOW BRASS SCRAP Shall consist of mixed yellow brass solids, including brass castings, rolled brass, rod brass, tubing and miscellaneous yellow brasses, including plated brass. Must be free of manganese-bronze, aluminum-bronze, unsweated radiators or radiator parts, iron, and excessively dirty and corroded materials. Must also be free of any type of munitions including, but not limited to, bullet casings.	Major	NEW NICKEL SILVER CLIPPINGS AND SOLIDS Shall consist of new, clean nickel silver clippings, plate, rod and forgings, and other rolled shapes, free of chrome or any other plating material. Must be sold on nickel content specifications such as 10%-12%-15%-18%-20%. Leaded nickel silver clippings should be packed and sold separately. A description as to its physical characteristics should be made in offering all nickel silver material.
Ivory	YELLOW BRASS CASTINGS Shall consist of yellow brass castings in crucible shape, no piece to measure more than 12 inches over any one part; and shall be free of brass forgings, silicon bronze, aluminum bronze and manganese bronze, and not to contain more than 15% nickel plated material.	Malar	NEW SEGREGATED NICKEL SILVER CLIPPINGS Shall consist of one specified nickel silver alloy. Not to contain more than 10% of clean punchings under 1/4 inch.
Label	NEW BRASS CLIPPINGS Shall consist of the cuttings of new unleaded yellow brass sheet or plate, to be clean and free from foreign substances and not to contain more than 10% of clean brass punchings under 1/4 inch. To be free of Muntz metal and naval brass.	Malic	OLD NICKEL SILVER Shall consist of old nickel silver sheet, pipe, rod, tubes, wire, screen, soldered or unsoldered. Must not be trimmed seams alone, and must also be free of foreign substances, iron rimmed material and other metals.
Lace	BRASS SHELL CASES WITHOUT PRIMERS Shall consist of clean fired 70/30 brass shell cases free of primers and any other foreign material. For material to be exported from the United States, all shells must be sufficiently mutilated to prevent reuse and reloading.	Melon	BRASS PIPE Shall consist of brass pipe free of plated and soldered materials or pipes with cast brass connections. To be sound, clean pipes free of sediment and condenser tubes.
Lady	BRASS SHELL CASES WITH PRIMERS Shall consist of clean fired 70/30 brass shell cases containing the brass primers, and containing no other foreign material. For material to be exported from the United States, all shells must be sufficiently mutilated to prevent reuse and reloading.	Naggy	NICKEL SILVER CASTINGS To be packed and sold separately.
		Niece	NICKEL SILVER TURNINGS To be sold by sample or analysis.

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Nascent LEADED BRASS SCRAP TURNINGS

Shall consist of scrap borings and turnings alloyed with copper, zinc, and lead. Turnings shall be unmixed and have less than 0.01% alloyed bismuth and silicon each and other impurities as agreed between buyer and seller.

Niche LEADED BRASS SCRAP ROD ENDS AND FORGINGS

Shall consist of scrap rod ends and forgings alloyed with copper, zinc, and lead. Solids shall have less than 0.01% alloyed bismuth and silicon each and other impurities as agreed between buyer and seller.

Night YELLOW BRASS ROD TURNINGS

Shall consist strictly of rod turnings, free of aluminum, manganese, composition, Tobin and Muntz metal turnings; not to contain over 3% free iron, oil or other moisture; to be free of grindings and babbitts; to contain not more than 0.30% tin and not more than 0.15% alloyed iron.

Noble NEW YELLOW BRASS ROD ENDS

Shall consist of new, clean rod ends from free turning brass rods or forging rods, not to contain more than 0.30% tin and not more than 0.15% alloyed iron. To be free of Muntz metal and naval brass or any other alloys. To be in pieces not larger than 12" and free of foreign matter.

Nomad YELLOW BRASS TURNINGS

Shall consist of yellow brass turnings, free of aluminum, manganese and composition turnings, not to contain over 3% of free iron, oil or other moisture; to be free of grindings and babbitts. To avoid dispute, to be sold subject to sample or analysis.

Ocean MIXED UNSWEATED AUTO RADIATORS

Shall consist of mixed automobile radiators, to be free of aluminum radiators, and iron-finned radiators. All radiators to be subject to deduction of actual iron. The tonnage specification should cover the gross weight of the radiators, unless otherwise specified.

Pales BRASS CONDENSER TUBES

Shall consist of clean condenser tubing which may be plated or unplated, free of excessive corroded material as mutually agreed. Upon mutual agreement between buyer and seller, may be in the form of whole bundles including iron and/or brass heads as well as iron and/or brass baffles.

Pallu ALUMINUM BRASS CONDENSER TUBES

Shall consist of clean sound condenser tubing which may be plated or unplated, free of nickel alloy and corroded material.

Palms MUNTZ METAL TUBES

Shall consist of clean sound Muntz metal tubing which may be plated or unplated, free of nickel alloy, aluminum alloy, and corroded material.

Parch MANGANESE BRONZE SOLIDS

Shall have a copper content of not less than 55%, a lead content of not more than 1%, and shall be free of aluminum bronze and silicon bronze.

CODE ITEM

ALUMINUM**Tablet CLEAN ALUMINUM LITHOGRAPHIC SHEETS**

To consist of 1000 and/or 3000 series alloys, to be free of paper, plastic, excessively inked sheets, and any other contaminants. Minimum size of 3" (8 cm) in any direction.

Tabloid NEW, CLEAN ALUMINUM LITHOGRAPHIC SHEETS

To consist of 1000 and/or 3000 series alloys, uncoated, unpainted, to be free of paper, plastic, ink, and any other contaminants. Minimum size of 3" (8 cm) in any direction.

Taboo MIXED LOW COPPER ALUMINUM CLIPPINGS AND SOLIDS

Shall consist of new, clean, uncoated and unpainted low copper aluminum scrap of two or more alloys with a minimum thickness of 0.015 inches (.38 mm) and to be free of 2000 and 7000 series, hair wire, wire screen, punchings less 1/2 inch (1.25 cm) diameter, dirt, and other non-metallic items. Grease and oil not to total more than 1%. Variations to this specification should be agreed upon prior to shipment between the buyer and seller.

Taint/ Tabor CLEAN MIXED OLD ALLOY SHEET ALUMINUM

Shall consist of clean old alloy aluminum sheet of two or more alloys, free of foil, venetian blinds, castings, hair wire, screen wire, food or beverage containers, radiator shells, airplane sheet, bottle caps, plastic, dirt, and other non-metallic items. Oil and grease not to total more than 1%. Up to 10% Tale permitted.

Take NEW ALUMINUM CAN STOCK

Shall consist of new low copper aluminum can stock and clippings, clean, lithographed or not lithographed, and coated with clear lacquer but free of lids with sealers, iron, dirt and other foreign contamination. Oil not to exceed 1%.

Talc POST-CONSUMER ALUMINUM CAN SCRAP

Shall consist of old aluminum food and/or beverage cans. The material is to be free of other scrap metals, foil, tin cans, plastic bottles, paper, glass, and other non-metallic items. Variations to this specification should be agreed upon prior to shipment between the buyer and seller.

Talcred SHREDDED ALUMINUM USED BEVERAGE CAN (UBC) SCRAP

Shall have a density of 12 to 17 pounds per cubic foot (193 to 273 kg/m³). Material should contain maximum 5% fines less than 4 mesh (U.S. standard screen size) (6.35 mm). Must be magnetically separated material and free of steel, lead, bottle caps, plastic cans and other plastics, glass, wood, dirt, grease, trash, and other foreign substances. Any free lead is basis for rejection. Any and all aluminum items, other than used beverage cans, are not acceptable. Variations to this specification should be agreed upon prior to shipment between the seller and buyer.

CODE ITEM

Taldack DENSIFIED ALUMINUM USED BEVERAGE CAN (UBC) SCRAP

Shall have a biscuit density of 35 to 50 pounds per cubic foot (562 to 802 kg/m³). Each biscuit not to exceed 60 pounds (27.2 kg). Nominal biscuit size range from 10" to 13" x 10 1/4" (25.4 x 33 x 26 cm) to 20" x 6 1/4" x 9" (50.8 x 15.9 x 22.9 cm). Shall have banding slots in both directions to facilitate bundle banding. All biscuits comprising a bundle must be of uniform size. Size: Bundle range dimensions acceptable are 41" to 44" x 51" (104 to 112 cm) to 54" x 54" (137 x 137 cm) to 56" (142 cm) high. The only acceptable tying method shall be as follows: Using minimum 5/8" (1.6 cm) wide by .020" (.05 cm) thick steel straps, the bundles are to be banded with one vertical band per row and a minimum of two firth (horizontal) bands per bundle. Use of skids and/or support sheets of any material is not acceptable. Must be magnetically separated material and free of steel, lead, bottle caps, plastic cans and other plastic, glass, wood, dirt, grease, trash, and other foreign substances. Any free lead is basis for rejection. Any and all aluminum items, other than used beverage cans, are not acceptable. Items not covered in the specifications, including moisture, and any variations to this specification should be agreed upon prior to shipment between the seller and buyer.

Taldon BALED ALUMINUM USED BEVERAGE CAN (UBC) SCRAP

Shall have a minimum density of 14 pounds per cubic foot (225 kg/m³), and a maximum density of 17 pounds per cubic foot (273 kg/m³) for unflattened UBC and 22 pounds per cubic foot (353 kg/m³) for flattened UBC. Size: Minimum 30 cubic feet (.85 m³), with bale range dimensions of 24" to 40" (61 to 132 cm) by 30" to 52" (76 to 132 cm) by 40" to 84" (102 to 213 cm). The only acceptable tying method shall be as follows: four to six 5/8" (1.6 cm) x .020" (5 mm) steel bands, or six to ten #13 gauge steel wires (aluminum bands or wires are acceptable in equivalent strength and number). Use of skids and/or support sheets of any material is not acceptable. Must be magnetically separated material and free of steel, lead, bottle caps, plastic cans and other plastic, glass, wood, dirt, grease, trash, and other foreign substances. Any free lead is basis for rejection. Any and all aluminum items, other than used beverage cans, are not acceptable. Variations to this specification should be agreed upon prior to shipment between the buyer and seller.

Taldork BRIQUETUED ALUMINUM USED BEVERAGE CAN (UBC) SCRAP

Shall have a briquette density of 50 pounds per cubic foot (800 kg/m³) minimum. Nominal briquette size shall range from 12" to 24" (30.5 x 61 cm) x 12" to 24" (30.5 x 61 cm) in uniform profile with a variable length of 8" (20.3 cm) minimum and 48" (122 cm) maximum. Briquettes shall be bundled or stacked on skids and secured with a minimum of one vertical band per row and a minimum of one girth band per horizontal layer. Briquettes not to overhang pallet. Total package height shall be 48 (122 cm) maximum. Banding shall be at least 5/8" (1.6 cm) wide by .020" (5 mm) thick steel strapping or

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equivalent strength. The weight of any bundle shall not exceed 4,000 pounds (1.814 mt). Material must be magnetically separated and free of steel, plastic, glass, dirt and all other foreign substances. Any and all aluminum items other than UBC are unacceptable. Any free lead is basis for rejection. Items not covered in the specification, including moisture, and any variations to this specification should be agreed upon prior to shipment between the buyer and seller.

Tale PAINTED SIDING

Shall consist of clean, low copper aluminum siding scrap, painted one or two sides, free of plastic coating, iron, dirt, corrosion, fiber, foam, or fiberglass backing or other non-metallic items.

Talk ALUMINUM COPPER RADIATORS

Shall consist of clean aluminum and copper radiators, and/or aluminum fins on copper tubing, free of brass tubing, iron and other foreign contamination.

Tall E.C. ALUMINUM NODULES

Shall consist of clean E.C. aluminum, chopped or shredded, free of screening, hair-wire, iron, copper, insulation and other non-metallic items. Must be free of minus 20 mesh material. Must contain 99.45% aluminum content.

Tally ALL ALUMINUM RADIATORS FROM AUTOMOBILES

Shall consist of clean aluminum radiators and/or condensers. Should be free of all other types of radiators. All contaminants including iron, plastic, and foam not to exceed 1% of weight. Any deviation to this specification, including oxidation and aluminum content, to be negotiated between buyer and seller.

Talon NEW PURE ALUMINUM WIRE AND CABLE

Shall consist of new, clean, unalloyed aluminum wire or cable free from hair wire, ACSR, wire screen, iron, insulation and other non-metallic items.

Tann NEW MIXED ALUMINUM WIRE AND CABLE

Shall consist of new, clean, unalloyed aluminum wire or cable which may contain up to 10% 6000 series wire and cable free from hair wire, wire screen, iron, insulation and other non-metallic items.

Tarry A CLEAN ALUMINUM PISTONS

Shall consist of clean aluminum pistons to be free from struts, bushings, shafts, iron rings and non-metallic items. Oil and grease not to exceed 2%.

Tarry B CLEAN ALUMINUM PISTONS WITH STRUTS

Shall consist of clean whole aluminum pistons with struts. Material is to be free from bushings, shafts, iron and non-metallic items. Oil and grease not to exceed 2%.

Tarry C IRONY ALUMINUM PISTONS

Shall consist of aluminum pistons with non-aluminum attachments to be sold on a recovery basis or by special arrangement between buyer and seller.

CODE	ITEM	CODE	ITEM
Tassel	OLD MIXED ALUMINUM WIRE AND CABLE Shall consist of old, unalloyed aluminum wire and cable which may contain up to 10% 6000 series wire and cable with not over 1% free oxide or dirt and free from hair wire, wire screen, iron, insulation and other non-metallic items.	Tepid	AIRCRAFT SHEET ALUMINUM Should be sold on recovery basis or by special arrangements with purchaser.
Taste	OLD PURE ALUMINUM WIRE AND CABLE Shall consist of old, unalloyed aluminum wire and cable containing not over 1% free oxide or dirt and free from hair wire, wire screen, iron, insulation and other non-metallic items.	Terse	NEW ALUMINUM FOIL Shall consist of clean, new, pure, uncoated 1000 and/or 3000 and/or 8000 series alloy aluminum foil, free from anodized foil, radar foil and chaff, paper, plastics, or any other non-metallic items. Hydraulically briquetted material and other alloys by agreement between buyer and seller.
Tata	NEW PRODUCTION ALUMINUM EXTRUSIONS Shall consist of one alloy (typically 6063). Material may contain "butt ends" from the extrusion process but must be free of any foreign contamination. Anodized material is acceptable. Painted material or alloys other than 6063 must be agreed upon by buyer and seller.	Tesla	POST CONSUMER ALUMINUM FOIL Shall consist of baled old household aluminum foil and formed foil containers of uncoated 1000, 3000 and 8000 series aluminum alloy. Material may be anodized and contain a maximum of 5% organic residue. Material must be free from radar chaff foil, chemically etched foil, laminated foils, iron, paper, plastic and other non-metallic contaminants.
Toto	ALUMINUM EXTRUSIONS "10/10" Material to consist of new production and old/used 6063 extrusions that may contain up to (but not exceed) 10 percent painted extrusions and 10 percent 6061 alloy extrusions. Must not contain other alloys of aluminum. Material should be free of zinc corners, iron attachments, felt, plastic, paper, cardboard, thermo break, and dirt and other contaminants.	Tetra	NEW COATED ALUMINUM FOIL Shall consist of new aluminum foil coated or laminated with ink, lacquers, paper, or plastic. Material shall be clean, dry, free of loose plastic, PVC and other non-metallic items. This foil is sold on a metal content basis or by sample as agreed between buyer and seller.
Tutu	ALUMINUM EXTRUSION DEALER GRADE Shall consist of old extruded aluminum of one alloy, typically alloy 6063, 6061, or 7075. Material must be free of iron, thermo break, saw chips, zinc corners, dirt, paper, cardboard, and other foreign contamination. Percentages of paint or other alloys to be agreed upon by buyer and seller.	Thigh	ALUMINUM GRINDINGS Should be sold on recovery basis or by special arrangements with purchaser.
Teens	SEGREGATED ALUMINUM BORINGS AND TURNINGS Shall consist of aluminum borings and turnings of one specified alloy. Material should be free of oxidation, dirt, free iron, stainless steel, magnesium, oil, flammable liquids, moisture and other non-metallic items. Fines should not exceed 3% through a 20 mesh (U.S. standard) screen.	Thirl	ALUMINUM DROSSES, SPATTERS, SPILLINGS, SKIMMINGS AND SWEEPINGS Should be sold on recovery basis or by special arrangements with purchaser.
Telic	MIXED ALUMINUM BORINGS AND TURNINGS Shall consist of clean, uncorroded aluminum borings and turnings of two or more alloys and subject to deductions for fines in excess of 3% through a 20 mesh screen and dirt, free iron, oil, moisture and all other non-metallic items. Material containing iron in excess of 10% and/or free magnesium or stainless steel or containing highly flammable cutting compounds will not constitute good delivery. To avoid dispute, material should be sold on basis of definite maximum zinc, tin and magnesium content.	Thorn	ALUMINUM BREAKAGE Shall consist of aluminum with miscellaneous contaminants like iron, dirt, plastic and other types of contaminants. Material can either be sold based on aluminum recovery or content as agreed upon by buyer and seller. Must contain a minimum of 33% aluminum unless otherwise agreed upon by buyer and seller.
Tense	MIXED ALUMINUM CASTINGS Shall consist of all clean aluminum castings which may contain auto and airplane castings but no ingots, and to be free of iron, brass, dirt and other non-metallic items. Oil and grease not to total more than 2%.	Throb	SWEATED ALUMINUM Shall consist of aluminum scrap which has been sweated or melted into a form or shape such as an ingot, sow or slab for convenience in shipping; to be free from corrosion, dross or any non-aluminum inclusions. Should be sold subject to sample or analysis.
		Tooth	SEGREGATED NEW ALUMINUM ALLOY CLIPPINGS AND SOLIDS Shall consist of new, clean, uncoated and unpainted aluminum scrap of one specified aluminum alloy with a minimum thickness of .015" (.38 mm) and to be free of hair wire, wire screen, dirt and other non-metallic items. Oil and grease not to total more than 1%. Also free from punchings less than 1/2" (1.27 cm) in size.

CODE	ITEM	CODE	ITEM
Tough	<p>MIXED NEW ALUMINUM ALLOY CLIPPINGS AND SOLIDS Shall consist of new, clean, uncoated and unpainted aluminum scrap of two or more alloys with a minimum thickness of .015" (.38 mm) and to be free of hair wire, wire screen, dirt and other non-metallic items. Oil and grease not to total more than 1%. Also free from punchings less than 1/2" (1.27 cm) in size.</p>	Twitch	<p>FLOATED FRAGMENTIZER ALUMINUM SCRAP (from Automobile Shredders) Derived from wet or dry media separation device, the material must be dry and not contain more than 1% maximum free zinc, 1% maximum free magnesium, and 1% maximum of analytical iron. Not to contain more than a total 2% maximum of non-metallics, of which no more than 1% shall be rubber and plastics. To be free of excessively oxidized material, air bag canisters, or any sealed or pressurized items. Any variation to be sold by special arrangement between buyer and seller.</p>
Tread	<p>SEGREGATED NEW ALUMINUM CASTINGS, FORGINGS AND EXTRUSIONS Shall consist of new, clean, uncoated aluminum castings, forgings, and extrusions of one specified alloy only and to be free from sawings, stainless steel, zinc, iron, dirt, oil, grease and other non-metallic items.</p>	Tweak	<p>FRAGMENTIZER ALUMINUM SCRAP (from Automobile Shredders) Derived from either mechanical or hand separation, the material must be dry and not contain more than 4% maximum free zinc, 1% maximum free magnesium, and 1.5% maximum of analytical iron. Not to contain more than a total 5% maximum of non-metallics, of which no more than 1% shall be rubber and plastics. To be free of excessively oxidized material, air bag canisters, or any sealed or pressurized items. Any variation to be sold by special arrangement between buyer and seller.</p>
Troma	<p>Aluminum Auto or Truck Wheels Shall consist of clean, single-piece, unplated aluminum wheels of a single specified alloy, free of all inserts, steel, wheel weights, valve stems, tires, grease and oil and other non-metallic items. Variations to this specification should be agreed upon prior to shipment between the buyer and seller.</p>	Twire	<p>BURNT FRAGMENTIZER ALUMINUM SCRAP (from Automobile Shredders) Incinerated or burned material must be dry and not contain more than X% (% to be agreed upon by buyer and seller) ash from incineration, 4% maximum free zinc, 1% maximum free magnesium, and 1.5% maximum of analytical iron. Not to contain more than a total 5% maximum of non-metallics, of which no more than 1% shall be rubber and plastics. To be free of excessively oxidized material, air bag canisters, or any sealed pressurized items. Any variation to be sold by special arrangement between buyer and seller.</p>
Trump	<p>ALUMINUM AUTO CASTINGS Shall consist of all clean automobile aluminum castings of sufficient size to be readily identified and to be free from iron, dirt, brass, bushings, and non-metallic items. Oil and grease not to total more than 2%.</p>	Zorba	<p>SHREDDED NONFERROUS SCRAP (predominantly aluminum) Shall be made up of a combination of the nonferrous metals: aluminum, copper, lead, magnesium, stainless steel, nickel, tin, and zinc, in elemental or alloyed (solid) form. The percentage of each metal within the nonferrous concentrate shall be subject to agreement between buyer and seller. Material generated by eddy current, air separation, flotation, screening, other segregation technique(s), or a combination thereof. Shall have passed one or more magnets to reduce or eliminate free iron and/or large iron attachments. Shall be free of radioactive material, dross, or ash. Material to be bought/sold under this guideline shall be identified as "Zorba" with a number to follow indicating the estimated percentage nonferrous metal content of the material (e.g., "Zorba 90" means the material contains approximately 90% nonferrous metal content). May also be screened to permit description by specific size ranges. (Refer also to Zorba under Mixed Metals.)</p>
Trill	<p>ACSR Aluminum Conductor Steel Reinforced (ACSR) wire is a combination of steel and aluminum wire, of various configurations, with the expected aluminum recovery agreed upon by the buyer and the seller. Material to be free of other wires and cables unless mutually agreed upon.</p>		
Twang	<p>IAW Insulated aluminum wire, which may or may not contain other wires or metal shielding, with the expected aluminum recovery agreed upon by the buyer and the seller. The material to be free of other wires and cables unless mutually agreed upon.</p>		
Twirl	<p>FRAGMENTIZER AIRCRAFT ALUMINUM SCRAP (2000 and 7000 series) The material as received must be dry and not to contain more than 2% free zinc, 1% maximum free magnesium, and 1.5% maximum free iron and stainless with a maximum of 2% analytical iron. Not to contain more than a total 5% maximum of non-metallics, of which no more than 1% shall be rubber and plastics. To be free of excessively oxidized material. Any variations to be sold by special arrangement between buyer and seller.</p>		
Twist	<p>ALUMINUM AIRPLANE CASTINGS Shall consist of clean aluminum castings from airplanes and to be free from iron, dirt, brass, bushings, and non-metallic items. Oil and grease not to total more than 2%.</p>		

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ZINC**Saves OLD ZINC DIE CAST SCRAP**

Shall consist of miscellaneous old zinc base die castings, with or without iron and other foreign attachments. Must be free of borings, turnings, dross pieces, chunks, melted pieces and skimmings. All unmeltables, dirt, foreign attachments, and volatile substances (such as rubber, cork, plastic, grease, etc.) are deductible. Material containing in excess of 30% iron will not constitute good delivery.

Scabs NEW ZINC DIE CAST SCRAP

Shall consist of new or unused, clean, zinc base die castings. Castings to be unplated, unpainted, and free from corrosion.

Scoot ZINC DIE CAST AUTOMOTIVE GRILLES

Shall consist of clean, old or used zinc base die cast automotive grilles, free from soldered material. All foreign attachments and extraneous materials are deductible.

Scope NEW PLATED ZINC DIE CAST SCRAP

Shall consist of new or unused clean, plated zinc base die castings, free from corrosion.

Score OLD SCRAP ZINC

Shall consist of clean dry scrap zinc, such as sheets, jar lids, clean unalloyed castings and anti-corrosion plates. Borings and turnings are not acceptable. Material must not be excessively corroded or oxidized. All foreign attachments and extraneous materials are deductible.

Screen NEW ZINC CLIPPINGS

Shall consist of any new pure zinc sheets or stampings free from corrosion. To contain no foreign material or attachments. Printers zinc, such as engravers zinc, lithograph sheets and addressograph plates subject to special arrangements. Printers zinc to be free of routings.

Scribe CRUSHED CLEAN SORTED FRAGMENTIZERS DIE CAST SCRAP, AS PRODUCED FROM AUTOMOBILE FRAGMENTIZERS

To be clean, free of dirt, oil, glass, rubber, and trash. To contain a maximum of 5% unmeltables such as free iron, copper, aluminum and other metals.

Scroll UNSORTED ZINC DIE CAST SCRAP

Produced from automobile fragmentizers. Material to contain about 55% zinc-bearing scrap. Other nonferrous metals such as aluminum, stainless steel, red metal, etc., to be about 40%. Insulated copper wire about 1%. Trash, dirt, glass, rubber, oil, iron, not to exceed 5%. Any variations to be sold by special arrangement between buyer and seller.

Scrub HOT DIP GALVANIZERS SLAB ZINC DROSS (Batch Process)

Shall consist only of galvanizers unsweated zinc dross in slab form from hot dip galvanizing (Batch Process) with a minimum zinc content of 92% and shall be free of skimmings and tramp iron. Broken

CODE ITEM

pieces under 2" in diameter shall not exceed 10% of the weight of each shipment. Slabs shall not weigh over 100 pounds each. Heavier pieces acceptable upon mutual agreement between buyer and seller. Material from continuous galvanizing operation is not acceptable. Blocks are acceptable upon mutual agreement.

Scull ZINC DIE CAST SLABS OR PIGS

Shall consist of melted zinc base die cast materials, in smooth clean solid slabs or pigs. Material to be free from drosses and to contain a minimum zinc content of 90%. To contain a maximum of 0.1% nickel and maximum of 1% lead. Blocks are acceptable upon mutual agreement.

Seal CONTINUOUS LINE GALVANIZING SLAB ZINC TOP DROSS

Shall consist of unsweated zinc dross removed from the top of a continuous line galvanizing bath, in slab form not weighing in excess of 100 pounds each, with a minimum zinc content of 90%. Heavier pieces acceptable upon mutual agreement between buyer and seller. Shall be free of skimmings. Broken pieces under 2" in diameter shall not exceed 10% of the weight of each shipment.

Seam CONTINUOUS LINE GALVANIZING SLAB ZINC BOTTOM DROSS

Shall consist of unsweated zinc dross removed from the bottom of a continuous line galvanizing bath, in slab form not weighing in excess of 100 pounds each, with a minimum zinc content of 92%. Heavier pieces acceptable upon mutual agreement between buyer and seller. Shall be free of skimmings. Broken pieces under 2" in diameter shall not exceed 10% of the weight of each shipment.

Shelf PRIME ZINC DIE CAST DROSS

Shall consist of metal skimmed from the top of pot of molten zinc die cast metal. Must be unsweated, unfluxed, shiny, smooth, metallic and free from corrosion or oxidation. Should be poured in molds or in small mounds weighing not over 75 pounds each.

MAGNESIUM**Wafer MAGNESIUM CLIPS**

Shall consist of clean magnesium clips in crucible size, free of copper, aluminum, and zinc flashings and excessive oil and grease. To be free of all foreign attachments.

Walnut MAGNESIUM SCRAP

Shall consist of magnesium castings, magnesium engine blocks and transmission casings, bomber and car wheels, extrusions, and sheet. Material to be free from brass and copper inserts and all foreign attachments. To be free of anodes, hollow castings and explosives. Percentages of and penalties for dirt, oil, grease, and iron to be subject to agreement between buyer and seller. Excessively large pieces to be negotiated between buyer and seller.

CODE ITEM**Wine MAGNESIUM ENGRAVER PLATES**

To be free of copper, aluminum, zinc, and electrotype plates. To be clean and free of all foreign attachments. Magnesium plates shipped loose by agreement between buyer and seller.

Wood MAGNESIUM DOCKBOARDS

Shall consist of clean magnesium dockboard cut or broken to size agreed upon by buyer and seller. To be free of all foreign attachments.

World MAGNESIUM TURNINGS

It is recommended that these materials be sold by special arrangement between buyer and seller.

LEAD**Racks SCRAP LEAD—SOFT**

Shall consist of clean soft scrap lead, free of other materials such as drosses, battery plates, lead covered cable, hard lead, collapsible tubes, foil, type metals, aluminum, zinc, iron and brass fittings, dirty chemical lead and radioactive materials. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Radio MIXED HARD/SOFT SCRAP LEAD

Shall consist of clean lead solids and lead shots, free of other materials, such as drosses, battery plates, lead covered cable, collapsible tubes, type metals, aluminum, zinc, iron and brass fittings, dirty chemical lead and radioactive materials. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Rains SCRAP DRAINED/DRY WHOLE INTACT LEAD

To be free of any liquid. Cases to be either plastic or rubber and be complete including caps. Non-lead (nicad, ni-fe, carbonaire, etc.) not acceptable. Industrial, steel cased, aircraft (aluminum cased) and partial, cracked or broken batteries and batteries without caps subject to special agreement. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Rakes BATTERY LUGS

To be free of scrap lead, wheel weights, battery plates, rubber and/or plastic case material and other foreign material. A minimum of 97% metallic content is required. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Relay LEAD COVERED COPPER CABLE

Free of armored covered cable and foreign material subject to negotiation between buyer and seller.

Rents LEAD DROSS

Should be clean and reasonably free of other materials such as iron, dirt, harmful chemicals or other metals. To be free of radioactive materials, aluminum and zinc. May be bought on an assay basis or as agreed to by buyer and seller. Other metals present such as antimony, tin, etc., to be accounted

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for as agreed between buyer and seller. Material to be readily dumped from drums. An extra charge may be assessed if material has to be mechanically removed. Review packaging specification and regulatory status pertaining to shipping with buyer prior to sale.

Rink SCRAP WET WHOLE INTACT LEAD BATTERIES

Consisting of SLI (starting, lighting & ignition), automotive, truck, 8-D and commercial golf cart and marine-type batteries. Cases to be either plastic or rubber and to be complete. Non-lead (i.e., ni-cad, ni-fe, carbonaire, etc.) not acceptable. Other types i.e. aircraft (aluminum) gel-cel, lawnmower, etc., and partial, cracked or broken batteries or batteries without caps and the amount of liquid content and any variations to the specification subject to special agreement. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Rono SCRAP INDUSTRIAL INTACT LEAD CELLS

Consisting of plates enclosed by some form of complete plastic case. Partial, cracked or broken cells, cells without caps and the amount of liquid content and any variations to the specification subject to special agreement. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Roper SCRAP WHOLE INTACT INDUSTRIAL LEAD BATTERIES

Consisting of bus, diesel, locomotive, telephone and/or steel cased batteries. Submarine batteries subject to negotiation. Partial, cracked, broken batteries or batteries without caps and the amount of liquid content and any variations to the specification subject to special agreement. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

Ropes WHEEL WEIGHTS

To consist of lead tire balances with or without iron clips. Not to include scrap lead, lugs or plates unless specifically agreed to. To be free of foreign material. Review packaging specifications and regulatory status pertaining to shipping with buyer prior to sale.

NICKEL/STAINLESS/HI TEMP**Aroma NEW NICKEL SCRAP**

Shall consist of clean new sheet, plate, bar, tube, and any other wrought nickel scrap solids. Nickel minimum 99%; Cobalt maximum 0.25%; Copper maximum 0.50%. Free of castings, as well as any foreign attachments or other contamination.

Burly OLD NICKEL SCRAP

Shall consist of old and/or new sheet, plate, bar, tube, and any other wrought nickel scrap solids. Material to contain a minimum of 98% nickel; Copper maximum 0.50%. This grade to be free of castings, soldered, brazed, sweated, or painted material, other metallic coating, foreign attachments, or any other contamination.

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Dandy	NEW CUPRO NICKEL CLIPS AND SOLIDS Shall consist of clean, new, segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel tube, pipe, sheet, plate, or other wrought solid forms. Must be free of foreign attachments or any other contamination.
Daunt	CUPRO NICKEL SOLIDS Shall consist of old, and/or new, segregated (normally accepted analysis grades) either 70/30, 80/20, 90/10 cupro nickel tube, pipe, sheet, plate, or other wrought solid forms. Maximum 2% sediment allowable. Any other forms of cupro nickel solids such as castings, gates, risers, spills, etc., packaged separately, may or may not be included, only upon agreement between buyer and seller. Must be free of foreign attachments and all other contamination. Other particulars concerning physical description, analysis and packaging to be agreed upon between buyer and seller.
Decoy	CURPO NICKEL SPINNINGS, TURNINGS, BORINGS Shall consist of clean, segregated (normally accepted analysis grades) either 70/30, 80/20, 90/10 cupro nickel spinnings, turnings, or borings. Particulars concerning physical description, analysis, and packaging, to be agreed upon between buyer and seller.
Delta	SOLDERED CUPRO NICKEL SOLIDS Shall consist of segregated (normally accepted analysis grades) either 70/30, 80/20, 90/10 cupro nickel solids, soldered, brazed, or sweated material. Must be free of trimmed seams and edges and all other contamination.
Depth	MISCELLANEOUS NICKEL-COPPER AND NICKEL-COPPER IRON Shall consist of miscellaneous scrap in which the basic elements, by weight, are nickel and copper, such as copper nickel peelings, plating racks, and hangers, and all nickel and copper in attached or combined form. In all cases, miscellaneous nickel copper scrap should be sold by description and analysis.
Hitth	NEW R-MONEL CLIPPINGS AND SOLIDS Shall consist of clean, new, R-Monel sheet, plate, bar, rod, tube, pipe, or any other wrought scrap. Must be free of any foreign attachments or all other contamination.
House	NEW MIXED MONEL SOLIDS AND CLIPPINGS Shall consist of new, clean R and K-Monel solids and clippings. Free of cast material, foreign attachments and all other contamination.
Ideal	OLD MONEL SHEET AND SOLIDS Shall consist of clean R and K-Monel solids such as sheet, plate, pipe, rods, forgings, screen and wire cloth. Must be free of soldered, brazed, welded, or sweated material, cast material, foreign attachments, and all other contamination.
Indian	K-MONEL SOLIDS Shall consist of clean K-Monel solids.

CODE ITEM

Junto	SOLDERED MONEL SHEET AND SOLIDS Shall consist of soldered and/or brazed miscellaneous grades of Monel alloys in either wrought or cast form. Must be free of trimmed seams and edges, non-metallic filling, foreign attachments, and all other contamination. Particulars concerning physical description, assay, and packaging to be agreed upon between buyer and seller.
Lemon	MONEL CASTINGS Shall consist of various types of clean Monel castings, assaying minimum 60% nickel. Must be free of foreign attachments or any other contamination.
Lemur	MONEL TURNINGS Shall consist of mixed Monel turnings and borings containing a minimum of 60% nickel content, on a dry basis.
Pekoe	200 SERIES STAINLESS STEEL SCRAP SOLIDS Shall consist of all types of clean AISI Series Stainless Steel Scrap Solids, which contain a maximum of .5% copper, free of foreign attachments and other contamination.
Sabot	STAINLESS STEEL SCRAP Shall consist of clean 18-8 type stainless steel clips and solids containing a minimum 7% nickel, 16% chrome, and have a maximum of .50% molybdenum, .50% copper, .045% phosphorous, and .03% sulfur, and otherwise free of harmful contaminants. Particulars concerning physical description, grading, additional analysis, and preparation to be agreed upon between buyer and seller.
Ultra	STAINLESS STEEL TURNINGS Shall consist of clean 18-8 type stainless steel turnings containing a minimum 7% nickel and 16% chrome, and to be free of nonferrous metals, non-metallics, excessive iron, oil and other contaminants. Particulars concerning physical description, assay, and packaging to be agreed upon between buyer and seller.
Vaunt	EDISON BATTERIES Nickel-iron batteries to be sold free of crates, copper terminal connectors, and excess liquid. Must be free of nickel cadmium batteries.
Zurik	SHREDDED NONFERROUS SENSOR SORTED SCRAP (predominantly stainless steel) Shall be made up of a combination of the nonferrous metals: stainless steel, insulated copper wire, aluminum, copper, lead, magnesium, nickel, tin, and zinc, in elemental or alloyed (solid) form. The percentage of each metal within the nonferrous concentrate shall be subject to agreement between buyer and seller. Material generated by computer sensing equipment (e.g., induction sensor sorting or X-ray) technique(s). Shall have passed one or more magnets to reduce or eliminate free iron and/or large iron attachments. Shall be free of radioactive material, dross, or ash. Material to be bought/sold under this guideline shall be identified as "Zurik" with a number to follow indicating the estimated

percentage nonferrous content of the material (e.g., "Zurik 90" means the material contains approximately 90% nonferrous metal content). May also be screened to permit description by specific size ranges. (Refer also to Zurik under Mixed Metals.)

MIXED METALS

Darth **BALLASTS (FLUORESCENT)**

Shall consist of whole and complete fluorescent light ballasts containing copper inside. Must not contain polychlorinated biphenyls (PCBs). Electronic ballasts subject to agreement between buyer and seller.

Vader **SEALED UNITS**

Shall consist of whole steel-cased compressors originating from condensers from air conditioner units, freezers, refrigerators or the like, containing a motor inside. Free of hazardous materials, including chlorofluorocarbons (CFCs) or other refrigerants and polychlorinated biphenyls (PCBs). No loose iron or extra iron attachments such as framework permitted.

Elmo **MIXED ELECTRIC MOTORS**

Shall consist of whole electric motors and/or dismantled electric motor parts that are primarily copper-wound. May contain aluminum-wound material, subject to agreement between buyer and seller. No excessive steel attachments such as gear reducers, iron bases, and pumps, or loose free iron allowed. Specification not to include sealed units or cast iron compressors.

Shelmo **SHREDDED ELECTRIC MOTORS (also called "shredder pickings" or "meatballs")**

Shall consist of mixed copper-bearing material from ferrous shredding, comprised of motors without cases. May contain aluminum-wound material and insulated copper harness wire, subject to agreement between buyer and seller. Trace percentages of other contaminants and fines may be present. No free iron or sealed units.

Zebra **(High Density)**

Shall consist of high-density nonferrous metals produced by media separation technology containing brass, copper, zinc, nonmagnetic stainless steel, and copper wire. Material to be dry and free from excess oxidation. The percentage and types of metals other than these, as well as the percentage and types of nonmetallic contamination, are to be agreed upon between the buyer and seller.

Zeppelin **(Light Density)**

Shall consist of light-density nonferrous metals produced by media separation technology and contain thin-gauge aluminum and magnesium. Material to be dry and free from excess oxidation. The percentage and types of metals other than aluminum and magnesium, as well as the percentage and types of nonmetallic contamination, are to be agreed upon between the buyer and seller.

Zorba **SHREDDED NONFERROUS SCRAP (predominantly aluminum)**

Shall be made up of a combination of the nonferrous metals: aluminum, copper, lead, magnesium, stainless steel, nickel, tin, and zinc, in elemental or alloyed (solid) form. The percentage of each metal within the nonferrous concentrate shall be subject to agreement between buyer and seller. Material generated by eddy current, air separation, flotation, screening, other segregation technique(s), or a combination thereof. Shall have passed one or more magnets to reduce or eliminate free iron and/or large iron attachments. Shall be free of radioactive material, dross, or ash. Material to be bought/sold under this guideline shall be identified as "Zorba" with a number to follow indicating the estimated percentage nonferrous metal content of the material (e.g., "Zorba 90" means the material contains approximately 90% nonferrous metal content). May also be screened to permit description by specific size ranges. (Refer also to Zorba under Aluminum.)

Zurik **SHREDDED NONFERROUS SENSOR SORTED SCRAP (predominantly stainless steel)**

Shall be made up of a combination of the nonferrous metals: stainless steel, insulated copper wire, aluminum, copper, lead, magnesium, nickel, tin, and zinc, in elemental or alloyed (solid) form. The percentage of each metal within the nonferrous concentrate shall be subject to agreement between buyer and seller. Material generated by computer sensing equipment (e.g., induction sensor sorting or X-ray) technique(s). Shall have passed one or more magnets to reduce or eliminate free iron and/or large iron attachments. Shall be free of radioactive material, dross, or ash. Material to be bought/sold under this guideline shall be identified as "Zurik" with a number to follow indicating the estimated percentage nonferrous content of the material (e.g., "Zurik 90" means the material contains approximately 90% nonferrous metal content). May also be screened to permit description by specific size ranges. (Refer also to Zurik under Nickel/Stainless/Hi Temp.)

OTHER

Ranch **BLOCK TIN**

Block tin must assay minimum of 98% tin, and to be free of liquids, solder, and brass connections, pewter, pumps, pot pieces, and dirt.

Ranks **PEWTER**

Shall consist of tableware and soda-fountain boxes but should contain a minimum of 84% tin. Siphon tops to be accounted for separately. Material must be free of brass, zinc, and other foreign metals.

Raves **HIGH TIN BASE BABBITT**

Shall contain a minimum of 78% tin and be free of brassy or zincy metals.

Roses MIXED COMMON BABBITT

Shall consist of lead base bearing metal containing not less than 8% tin, free from Allens metal, ornamental, antimonial and type metal. Must be free from all zinc and excessive copper in the alloy.

Identification Checklist for Precious Metals

This Identification Check List for Precious Metals sets up a general basis for identifying types and grades of precious metals scrap by the scrap processor who will be familiar both to the precious metals refiner and to the plants generating precious metals scrap.

By checking this identification list, the scrap processor gives the refiner a fairly accurate conception of the material the processor has on hand and offers a basis for the refiner to quote an estimated price for the material.

Due to the high values and the constantly changing character of precious metal scrap, it is often the practice in the industry to require a sample to be submitted before giving refining schedules.

I. Scrap Sources

REFINED SILVER METAL – 99.9 MIN. PERCENT

Silver-bearing materials:

Anodes
Assemblies–Electrical
Batteries
 Silver/Copper Plated
 Silver/Cadmium
 Silver/Zinc Silver/Magnesium
Blanking Scrap–Punchings
Brazing Alloys
Brushes–Electric Motors
Bullion
Chemical Salts
Clad Bi-Metal Parts
Coin Silver
Contacts
Dental Amalgam
Films
 Industrial X-Ray
 Medical X-Ray
 Lithographic
 Photographic Negatives
Filters–Plating
Flake–From Hypo Solution Recovery Systems
Hooks–Plating–Nodules
Jewelry Sweeps
Paints–Paste
Paper–Reproduction
Plated Parts–Electrical–Electronic
Plated Serving Pieces
Plated Utensils

Plated Wire
Powders–Granulated
Punchouts
Relays–Electrical
Resins
Silver Lined Bearings–Diesel Locomotives and Aircraft
Sludges–Plating and Precipitates
Solutions–Plating
Sterling Silver
Tin Lead Alloys–Contaminated
Turnings
Wave Guides
Wiping Rags

REFINED GOLD METAL – 99.5 MIN. PERCENT

REFINED GOLD SPONGE – 99.5 MIN. PERCENT

Gold-bearing materials:

Brazing Alloys
Clad Metal Parts
Contacts
Dental Alloys
Dental Scrap
Dental Sweeps and Grindings
Diodes
Filled Scrap
Filters–Plating
Flakes
Flashings
Foil
Hooks–Plating–Nodules
Jewelry Scrap
Jewelry Sweeps and
 Grindings
Paints and Paste
Peelings
Placer Gold
Plated Parts–Electrical
Plated Wire
Powders
Printed Circuit Boards
Printed Circuit Boards with Components
Punchouts
Resins–Plating
Salts–Chemical
Sludges–Plating
Solutions
Sponge
Tin Lead Alloys–
 Contaminated
Transistors
Wiping Rags
Wire

REFINED PALLADIUM METAL–99.9 MIN. PERCENT

REFINED PALLADIUM SPONGE–99.9 MIN.

Palladium-bearing materials:

Catalysts
Chemical Salts
Clad Materials
Contact Points

Dental Alloys
 Dental Scraps
 Dental Sweeps
 Jewelry Scrap (Sweeps)
 Paste
 Plated Parts
 Powders
 Relays—Electrical
 Sludges
 Solutions
 Wire

**REFINED PLATINUM METAL—99.9 MIN. PERCENT
 REFINED PALLADIUM SPONGE—99.9 MIN. PERCENT**

Platinum-bearing materials:

Catalysts
 Chemicals
 Clad Materials
 Contacts
 Dental Alloys
 Dental Scrap
 Dental Sweeps, Grindings
 Jewelry Scrap
 Jewelry Sweeps
 Laboratory Ware
 Magneto Points
 Powders and Paste
 Solutions—Plating
 Spark Plugs—Aircraft
 Thermocouple Wire

Scrap containing combinations of precious metals
 (gold, silver, platinum and palladium):

Assemblies—Components
 Bullion
 Carbon
 Catalysts
 Chemicals
 Chips
 Drillings
 Electronic Scrap
 High Temperature Resistant Alloys
 Paints
 Paste
 Powders
 Relays—Electrical
 Resins
 Ribbons
 Rings
 Salts
 Solutions
 Sweeps
 Telephone Switching Scrap
 Thick Film
 Wire

II. SCRAP CATEGORIES

A. Solution

1. Acid
2. Basic
3. Matrix if known

B. Resin

C. Sludges

D. Burnable Material

1. Carbon
2. Filters
3. Film
4. Papers
5. Unprepared Sweeps
6. Others

E. Sweeps (Prepared)

F. Printed Circuit Board

1. Punch Outs
2. Non Assembled
3. Assembled

G. Glass to Metal Tubes, etc.

1. Solid Precious Metal Parts
2. Alloyed Metal Parts
3. Plated Metal Parts
4. Ceramics
5. Thick Film
6. Other...

H. Metal Scrap

I. Non-Magnetic

1. Impure Gold
2. Impure Silver
3. Copper Base
4. Aluminum Base
5. Brass Base
6. Bronze Base
7. Molybdenum Base
8. Beryllium Base
9. Lead Base
10. Tin Base
11. Other....

II. Magnetic

1. Kovar Base
2. Stainless Steel Base
3. Iron Base
4. Nickel Base
5. Other....

I. Catalyst

1. Carbon
2. Alumina
3. Rare Earth
4. Silica
5. Other....

Guidelines for Ferrous Scrap: FS-2016

General Information

a. Cleanness. All grades shall be free of dirt, nonferrous metals, or foreign material of any kind, and excessive rust and corrosion. However, the terms "free of dirt, nonferrous metals, or foreign material of any kind" are not intended to preclude the accidental inclusion of negligible amounts where it can be shown that this amount is unavoidable in the customary preparation and handling of the particular grade involved.

b. Off-grade material. The inclusion in a shipment of a particular grade of iron and steel scrap of a negligible amount of metallic material which exceeds to a minor extent the applicable size limitations, or which fails to a minor extent to meet the applicable requirements as to quality or kind of material, shall not change the classification of the shipment, provided it can be shown that the inclusion of such off-grade material is unavoidable in the customary preparation and handling of the grade involved.

c. Residual alloys. Wherever the term "free of alloys" is used in the classifications given herein, it shall mean that any alloys contained in the steel are residual and have not been added for the purpose of making an alloy steel. Steel scraps shall be considered free of alloys when the residual alloying elements do not exceed the following percentages:

Nickel	.45%	Molybdenum	.10%
Chromium	.20%	Manganese	1.65%

The combined residuals other than manganese shall not exceed a total of 0.60 percent.

d. Deviations. Any deviations from the general classifications of iron and steel scrap may be consummated by mutual agreement between buyer and seller.

- 200 No. 1 heavy melting steel.**
Wrought iron and/or steel scrap 1/4 inch and over in thickness. Individual pieces not over 60 x 24 inches (charging box size) prepared in a manner to insure compact charging.
- 201 No. 1 heavy melting steel 3 feet x 18 inches.**
Wrought iron and/or steel scrap 1/4 inch and over in thickness. Individual pieces not over 36 x 18 inches (charging box size) prepared in a manner to insure compact charging.
- 202 No. 1 heavy melting steel 5 feet x 18 inches.**
Wrought iron and/or steel scrap 1/4 inch and over in thickness. Individual pieces not over 60 x 18 inches (charging box size) prepared in a manner to insure compact charging.
- 203 No. 2 heavy melting steel.***
Wrought iron and steel scrap, black and galvanized, 1/8 inch and over in thickness, charging box size to include material not suitable as No. 1 heavy melting steel. Prepared in a manner to insure compact charging.
- 204 No. 2 heavy melting steel.***
Wrought iron and steel scrap, black and galvanized, maximum size 36 x 18 inches. May include all automobile scrap properly prepared.
- 205 No. 2 heavy melting steel 3 feet x 18 inches.**
Wrought iron and steel scrap, black and galvanized, maximum size 36 x 18 inches. May include automobile scrap, properly prepared; however, to be free of sheet iron or thin gauged material.
- 206 No. 2 heavy melting steel 5 feet x 18 inches.**
Wrought iron and steel scrap, black and galvanized, maximum size 60 x 18 inches. May include automobile scrap, properly prepared; however, to be free of sheet iron or thin gauged material.
- 207 No. 1 busheling.**
Clean steel scrap, maximum size 2 feet by 5 feet, including new factory busheling (for example, sheet clippings, stampings, etc.). May not include old auto body and fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing over 0.5 percent silicon.
- 207A New black sheet clippings.**
For direct charging, maximum size 8 feet by 18 inches, free of old automobile body and fender stock, metal coated, lined, vitreous enameled and electrical sheet containing over 0.5 percent silicon. Must lay reasonably flat in car.
- 208 No. 1 bundles.**
New black steel sheet scrap, clippings or skeleton scrap, compressed or hand bundled, to charging box size, and weighing not less than 75 pounds per cubic foot. (Hand bundles are tightly secured for handling with a magnet.) May include Stanley balls or mandrel wound bundles or skeleton reels, tightly secured. May include chemically detinned material. May not include old auto body or fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing over 0.5 percent silicon.
- 209 No. 2 bundles.**
Old black and galvanized steel sheet scrap, hydraulically compressed to charging box size and weighing not less than 75 pounds per cubic foot. May not include tin or lead-coated material or vitreous enameled material.
- 210 Shredded scrap.**
Homogeneous iron and steel scrap, magnetically separated, originating from automobiles, unprepared No. 1 and No. 2 steel, miscellaneous baling and sheet scrap. Average density 50 pounds per cubic foot.
- 211 Shredded scrap.**
Homogeneous iron and steel scrap magnetically separated, originating from automobiles, unprepared No. 1 and No. 2 steel, miscellaneous baling and sheet scrap. Average density 70 pounds per cubic foot.

CODE	ITEM	CODE	ITEM
212	Shredded clippings. Shredded 1000 series carbon steel clippings or sheets. Material should have an average density of 60 pounds per cubic foot.	222	Shoveling turnings and iron borings. Same as shoveling turnings, but including iron borings.
213	Steel can bundles. Steel can scrap compressed to charging box size and weighing not less than 75 pounds per cubic foot. Cans may be baled without removal of paper labels, but free of other non-metallics. May include up to 5 gallon tin coated containers.	223	Iron borings. Clean cast iron or malleable iron borings and drillings, free of steel turnings, scale, lumps or excessive oil.
214	No. 3 bundles. Old sheet steel, compressed to charging box size and weighing not less than 75 pounds per cubic foot. May include all coated ferrous scrap not suitable for inclusion in No. 2 bundles.	224	Auto slabs. Clean automobile slabs, cut 3 feet x 18 inches and under.
215	Incinerator bundles. Tin can scrap, compressed to charging box size and weighing not less than 75 pounds per cubic foot. Processed through a recognized garbage incinerator.	225	Auto slabs. Clean automobile slabs, cut 2 feet x 18 inches and under.
216	Terne plate bundles. New terne plate sheet scrap, clippings or skeleton scrap, compressed or hand bundled, to charging box size, and weighing not less than 75 pounds per cubic foot. (Hand bundles are tightly secured for handling with a magnet.) May include Stanley balls or mandrel wound bundles or skeleton reels, tightly secured.	226	Briquetted iron borings. Analysis and density to consumer's specifications.
217	Bundled No. 1 steel. Wrought iron and/or steel scrap 1/8 inch or over in thickness, compressed to charging box size and weighing not less than 75 pounds per cubic foot. Free of all metal-coated material.	227	Briquetted steel turnings. Analysis and density to consumer's specifications.
218	Bundled No. 2 steel. Wrought iron or steel scrap, black or galvanized, 1/8 inch and over in thickness, compressed to charging box size and weighing not less than 75 pounds per cubic foot. Auto body and fender stock, burnt or hand stripped, may constitute a maximum of 60 percent by weight. (This percent based on makeup of auto body, chassis, driveshafts, and bumpers.) Free of all coated material, except as found on automobiles.	228	Mill scale. Dark colored, ranging from blue to black, ferromagnetic iron oxide forming on the surface of steel articles during heating and working.
219	Machine shop turnings. Clean steel or wrought iron turnings, free of iron borings, nonferrous metals in a free state, scale, or excessive oil. May not include badly rusted or corroded stock.	<i>*The identical designations given for these two classifications are in accordance with established industry practices in specifying the materials desired.</i>	
220	Machine shop turnings and iron borings. Same as machine shop turnings but including iron borings.	Electric Furnace Casting and Foundry Grades	
221	Shoveling turnings. Clean short steel or wrought iron turnings, drillings, or screw cuttings. May include any such material whether resulting from crushing, raking, or other processes. Free of springy, bushy, tangled or matted material, lumps, iron borings, nonferrous metals in a free state, grindings, or excessive oil.	229	Billet, bloom and forge crops. Billet, bloom, axle, slab, heavy plate and heavy forge crops, containing not over 0.05 percent phosphorus or sulphur and not over 0.5 percent silicon, free from alloys. Dimensions not less than 2 inches in thickness, not over 18 inches in width, and not over 36 inches in length.
		230	Bar crops and plate scrap. Bar crops, plate scrap, forgings, bits, jars, and tool joints, containing not over 0.05 percent phosphorus or sulphur, not over 0.5 percent silicon, free from alloys. Dimensions not less than 1/2 inch in thickness, not over 18 inches in width, and not over 36 inches in length.
		231	Plate and structural steel, 5 feet and under. Cut structural and plate scrap, 5 feet and under. Clean open hearth steel plates, structural shapes, crop ends, shearings, or broken steel tires. Dimensions not less than 1/4 inch thickness, not over 5 feet in length and 18 inches in width. Phosphorus or sulphur not over 0.05 percent.
		232	Plate and structural steel, 5 feet and under. Cut structural and plate scrap, 5 feet and under. Clean open hearth steel plates, structural shapes, crop ends, shearings, or broken steel tires. Dimensions not less than 1/4 inch thickness, not over 5 feet in length and 24 inches in width. Phosphorus or sulphur not over 0.05 percent.
		233	Cast steel. Steel castings not over 48 inches long or 18 inches wide, and 1/4 inch and over in thickness, containing

CODE	ITEM	CODE	ITEM
	not over 0.05 percent phosphorus or sulphur, free from alloys and attachments. May include heads, gates, and risers.		
234	Punchings and plate scrap. Punchings or stampings, plate scrap, and bar crops containing not over 0.05 percent phosphorous or sulphur and not over 0.5 percent silicon, free from alloys. All materials cut 12 inches and under, and with the exception of punchings or stampings, at least 1/8 inch in thickness. Punchings or stampings under 6 inches in diameter may be any gauge.	243A	Low residual, black foundry busheling. 1000 series black carbon steel scrap, 1/8 inch and over in thickness, not more than 12 inch x 24 inch, manganese content not more than 0.50 percent. Other parameters subject to agreement between supplier and consumer.
235	Electric furnace bundles. New black steel sheet scrap hydraulically compressed into bundles of size and weight as specified by consumer.	243B	Low residual, ductile quality shredded clips. Shredded black 1000 series carbon steel scrap, 1/8 inch and over in thickness, minimum average density of 75 PCF, manganese content not more than 0.50 percent. Other parameters subject to agreement between supplier and consumer.
236	Cut structural and plate scrap, 3 feet and under. Clean open hearth steel plates, structural shapes, crop ends, shearings, or broken steel tires. Dimensions not less than 1/4 inch in thickness, not over 3 feet in length and 18 inches in width. Phosphorus or sulphur not over 0.05 percent.	244	Springs and crankshafts. Clean automotive springs and crankshafts, either new or used.
237	Cut structural and plate scrap, 2 feet and under. Same as cut structural and plate scrap, 3 feet and under, except for length.	245	Alloy free turnings. Clean shoveling steel turnings free from lumps, tangled or matted material, iron borings, or excessive oil containing not more than 0.05 percent phosphorus or sulphur, and free of alloys.
238	Cut structural and plate scrap, 1 foot and under. Same as cut structural and plate scrap, 3 feet and under, except for length.	246	Alloy free short shoveling steel turnings. Clean shoveling steel turnings, free of lumps, tangled or matted material, iron borings, or excessive oil, containing not more than 0.05 percent phosphorus or sulphur, and free of alloys.
239	Silicon busheling. Clean silicon bearing steel scrap, not exceeding 12 inches in any dimension, including new factory busheling (for example, sheet clippings, stampings, etc.), having a silicon content of 0.05 percent to 5.0 percent.	247	Alloy free machine shop turnings. Clean steel turnings, free of iron borings or excessive oil, containing not more than 0.05 percent phosphorus or sulphur, and free of alloys. May not include badly rusted or corroded stock.
240	Silicon Clippings. Clean steel scrap, including new factory busheling (for example, sheet clippings, stampings, etc.), may not include old auto body and fender stock. Free of metal coated, limed, vitreous enameled, and electrical sheet containing minimum 1 percent silicon.	248	Hard steel cut 30 inches and under. Automotive steel consisting of rear ends, crankshafts, driveshafts, front axles, springs, and gears prepared 30 inches and under. May not include miscellaneous small shoveling steel or any pieces too bulky for gray iron foundry use.
241	Chargeable ingots and ingot butts. Chargeable ingots and ingot butts for material to be suitable and acceptable to the consumer containing not over 0.05 percent phosphorus or sulphur and not over 0.05 percent silicon free of alloys.	249	Chargeable slab crops. Chargeable slab crops for material to be suitable and acceptable to the consumer containing not over 0.05 percent phosphorus and 0.05 percent sulphur and not over 0.05 percent silicon and free of alloys.
242	Foundry steel, 2 feet and under. Steel scrap 1/8 inch and over in thickness, not over 2 feet in length or 18 inches in width. Individual pieces free from attachments. May not include nonferrous metals, cast or malleable iron, cable, vitreous enameled, or metal coated material.	250	Silicon bundles. Silicon sheet scrap, clippings or skeleton scrap, compressed or hand bundled, to charging box size, and weighing not less than 75 pounds per cubic foot, having a silicon content of 0.50 percent to 5.0 percent.
243	Foundry steel, 1 foot and under. Same specifications as 2-foot material, except for length.	251	Heavy turnings. Short, heavy steel turnings, containing not over 0.05 percent phosphorus or sulphur and free of alloys. May include rail chips. May not include machine shop or other light turnings and must weigh not less than 75 pounds per cubic foot in the original state of production.

CODE ITEM

Specially Processed Grades to Meet Consumer Requirements

Grades of scrap prepared especially to meet with steel mill or foundry requirements, individual specifications to be agreed on between consumer and supplier.

Cast Iron Grades

- 252 Cupola cast.**
Clean cast iron scrap such as columns, pipes, plates, and castings of a miscellaneous nature, including automobile blocks and cast iron parts of agricultural and other machinery. Free from stove plate, burnt iron, brake shoes or foreign material. Cupola size, not over 24 inches x 30 inches, and no piece over 150 pounds in weight.
- 253 Charging box cast.**
Clean cast iron scrap in sizes not over 60 inches in length or 30 inches in width, suitable for charging into an open hearth furnace without further preparation. Free from burnt iron, brake shoes, or stove plate.
- 254 Heavy breakable cast.**
Cast iron scrap over charging box size or weighing more than 500 pounds. May include cylinders and driving wheel centers. May include steel which does not exceed 10 percent of the casting by weight.
- 255 Hammer block or bases.**
Cast iron hammer blocks or bases.
- 256 Burnt iron.**
Burnt cast iron scrap, such as stove parts, grate bars, and miscellaneous burnt iron. May include sash weights or window weights.
- 257 Mixed cast.**
May include all grades of cast iron except burnt iron. Dimensions not over 24 inches x 30 inches and no piece over 150 pounds in weight.
- 258 Stove plate, clean cast iron stove.**
Free from malleable and steel parts, window weights, plow points, or burnt cast iron.
- 259 Clean auto cast.**
Clean auto blocks; free of all steel parts except camshafts, valves, valve springs, and studs. Free of non-ferrous and non-metallic parts.
- 260 Unstripped motor blocks.**
Automobile or truck motors from which steel and nonferrous fittings may or may not have been removed. Free from driveshafts and all parts of frames.
- 261 Drop broken machinery cast.**
Clean heavy cast iron machinery scrap that has been broken under a drop. All pieces must be of cupola size, not over 24 inches x 30 inches, and no piece over 150 pounds in weight.
- 262 Clean auto cast, broken, not degreased.**
Clean auto blocks, free of all steel parts except camshafts, valves, valve springs and studs. Free of non-

CODE ITEM

- ferrous and non-metallic parts, and must be broken to cupola size, 150 pounds or less.
- 263 Clean auto cast, degreased.**
Free of all steel parts except camshafts, valves, valve springs, and studs. Free of nonferrous and non-metallic parts, and must be broken into cupola size, 150 pounds or less.
- 264 Malleable.**
Malleable parts of automobiles, railroad cars, locomotives, or miscellaneous malleable iron castings. Free from cast iron and steel parts and other foreign material.
- 265 Broken ingot molds and stools.**
Broken ingot molds and stools, cast iron, maximum size 2 feet x 3 feet x 5 feet.
- 266 Unbroken ingot molds and stools.**
Unbroken ingot molds and stools, cast iron.

Special Boring Grades

- 267 No. 1 chemical borings.**
New clean cast or malleable iron borings and drillings containing not more than 1 percent oil, free from steel turnings, or chips, lumps, scale, corroded or rusty material.
- 268 Briquetted cast iron borings, hot process.**
Cast iron borings, heated, briquetted, to a density of approximately 85 percent, oil and water content under 1 percent.
- 269 Briquetted cast iron borings, cold process.**
Cast iron boring briquettes, free of steel and non-ferrous material, hydraulically compressed into a cohesive solid, reasonably free of oil, and having a density of not less than 60 percent.
- 270 Malleable borings.**
Clean malleable iron borings and drillings, free of steel turnings, scale, lumps and excessive oil.
- 271 No. 2 chemical borings.**
New clean cast or malleable iron borings and drillings, containing not more than 1.5 percent oil, free from steel turnings, or chips, lumps, scale, corroded or rusty material.

Steel From Scrap Tires**General Guidelines**

Items not covered in the specifications, and any variations in the specification, are subject to special arrangement between buyer and seller. Percentages listed below are by weight.

Preparation

Consumer and supplier to agree upon preparation for transport, such as the following:

Loose-Whole.

Loose-Chopped. If wire is chopped or shredded, parties may wish to specify the means of processing and/or characteristics of the final product (density, length of pieces, etc.).

CODE ITEM

Baled. Bales of wire should maintain their form during loading, shipment, unloading, storage, and handling typical of that done at a consuming facility, unless otherwise specified.

Baled—High Density. Hydraulically compressed, no dimension larger than 24", density of at least 75 pounds per square foot.

Baled—HRB/Low Density. Density of less than 75 pounds per square foot. Each bale secured with sufficient number of bale ties drawn tight to insure a satisfactory delivery.

Other Means of Preparation. Individual specifications to be agreed upon between consumer and supplier.

- 272 Pulled bead wire (Truck)—Grade 1.**
Not chopped; made up of loops of wire. Less than five percent (<5%) rubber/fiber.
- 273 Pulled bead wire (Truck)—Grade 2.**
Not chopped; made up of loops of wire. Five to ten percent (5-10%) rubber/fiber.
- 274 Pulled bead wire (Truck)—Grade 3.**
Not chopped; made up of loops of wire. Greater than ten percent (>10%) rubber/fiber.
- 275 Pulled bead wire (Passenger)—Grade 1.**
Not chopped; made up of loops of wire. Less than five percent (<5%) rubber/fiber.
- 276 Pulled bead wire (Passenger)—Grade 2.**
Not chopped; made up of loops of wire. Five to ten percent (5-10%) rubber/fiber.
- 277 Pulled bead wire (Passenger)—Grade 3.**
Not chopped; made up of loops of wire. Greater than ten percent (>10%) rubber/fiber.
- 278 Processed tire wire (Ferrous)—Grade 1.**
Chopped. Less than two percent (<2%) rubber/fiber.
- 279 Processed tire wire (Ferrous)—Grade 2.**
Chopped. Less than five percent (<5%) rubber/fiber.
- 280 Processed tire wire (Ferrous)—Grade 3.**
Chopped. Five to ten percent (5-10%) rubber/fiber.
- 281 Processed tire wire (Ferrous)—Grade 4.**
Chopped. Ten to twenty percent (10-20%) rubber/fiber.
- 282 Processed tire wire (Ferrous)—Grade 5.**
Chopped. Greater than twenty percent (>20%) rubber/fiber.

Railroad Ferrous Scrap*

Specifications of Association of American Railroads promulgated by its Purchases and Materials Management Division (Revised 1973)

- (2) Axles, Steel.**
Solid car and/or locomotive friction bearing, 8 inch diameter and under (free of axles with key-way between wheel seats, no axles of shorter lengths than distance between wheel seats to be included).

CODE ITEM

- (2A) Axles, Steel.**
Solid car and/or locomotive friction bearing over 8 inch diameter (free of axles with key-way between wheel seats, no axles of shorter length than distance between wheel seats to be included).
- (3) Axles, Steel.**
Roller bearing 8 inch diameter and under (no axles of shorter lengths than distance between wheel seats to be included).
- (3A) Axles, Steel.**
Roller bearing over 8 inch diameter (no axles of shorter length than distance between wheel seats to be included).
- (4) Spikes, Track Bolts and Nuts, and Lock Washers, may include Rail Anchors.**
- (5) Tie Plates.**
Steel.
- (6) Rail Joints, Angle and/or Splice Bars.**
Steel.
- (9) Bolsters and/or Truck Sides, Frames: Uncut.**
Cast steel.
- (11) Cast Steel, No. 2.**
Steel castings, over 18 inches wide and/or over 5 feet long.
- (11A) Cast Steel, No. 1.**
Steel castings, 18 inches and under, not over 5 feet long, including cut truck side frames and bolsters.
- (12) Cast Iron, No. 1.**
Cast iron scrap, such as columns, pipes, plates, and/or castings of miscellaneous nature, but free from stove plates, brake shoes, and burnt scrap. Must be cupola size, not over 24 x 30 inches in dimension and no piece to weigh over 150 pounds. Must be free from foreign material.
- (13) Cast Iron, No. 2.**
Pieces weighing over 150 pounds, but not more than 500 pounds. Free from burnt cast.
- (14) Cast Iron, No. 3.**
Pieces weighing over 500 pounds; includes cylinders, driving wheel centers and/or all other castings. (Free from hammer blocks or bases.)
- (15) Cast Iron, No. 4.**
Burnt cast iron scrap, such as grate bars, stove parts and/or miscellaneous burnt scrap.
- (16) Cast Iron Brake Shoes.**
Brakes shoes of all types except composition-filled shoes.
- (17) Couplers and/or Knuckles.**
Railroad car and/or locomotive steel couplers, knuckles and/or locks stripped clean of all other attachments.
- (18) Frogs and/or Switches, uncut.**
Steel frogs and switches that have not been cut apart, exclusive of manganese.

CODE	ITEM	CODE	ITEM
(18A)	Railbound Manganese Frogs and Switch Points with manganese inserts that have not been cut apart.	(35)	Structural, Wrought Iron and/or Steel Uncut. All steel or steel mixed with iron from bridges, structures and/or equipment that has not been cut apart, may include uncut bolsters, brakebeams, steel trucks, underframes, channel bars, steel bridge plates, frog and/or crossing plates and/or other steel of similar character.
(23)	Malleable. Malleable parts of automobiles, railroad cars, locomotive and/or miscellaneous malleable castings.	(36)	Tires. All locomotive, not cut to specified lengths.
(24)	Melting Steel, Railroad No. 1. Clean wrought iron or steel scrap, 1/4 inch and over in thickness, not over 18 inches in width, and not over 5 feet in length. May include pipe ends and material 1/8 inch to 1/4 inch in thickness, not over 15 inches x 15 inches. Individual pieces cut so as to lie reasonably flat in charging box.	(38)	Turnings, No. 1. Heavy turnings from wrought iron and/or steel railroad axles or heavy forgings and/or rail chips, to weigh not less than 75 pounds per cubic foot. Free from dirt or other foreign material of any kind. Alloy steel scrap may be excluded from these specifications by mutual agreement between buyer and seller.
(27)	Rail, Steel No. 1. Standard section tee rails, original weight 50 pounds per yard or heavier, 10 feet long and over. Suitable for rerolling into bars and shapes. Free from bent and twisted rails, frog, switch, and guard rails, or rails with split heads and broken flanges. Continuous welded rail may be included provided no weld is over 9 inches from the end of the piece of rail.	(38A)	Turnings, Drillings and/or Borings, No. 2. Cast, wrought, steel and/or malleable iron borings, turnings and/or drillings mixed with other metals.
(28A)	Rail, Steel No. 2 Cropped Rail Ends. Standard section, original weight of 50 pounds per yard and over, 18 inches long and under.	(40)	Wheels, No. 1. Cast iron car wheels.
(28B)	Rail, Steel No. 2 Cropped Rail Ends. Standard section, original weight of 50 pounds per yard and over, 2 feet long and under.	(42)	Wheels, No. 3. Solid cast steel, forged, pressed and/or rolled steel car and/or locomotive wheels, not over 42 inches diameter. (Specify kind in offering.)
(28C)	Rail, Steel No. 2 Cropped Rail Ends. Standard section, original weight 50 pounds per yard and over, 3 feet long and under.	(45)	Destroyed Steel Cars. Bodies of steel cars cut apart sufficiently to load. (Specify kind.)
(29)	Rail, Steel No. 3. Standard section tee, girder, and/or guard rails, to be free from frog and switch rails not cut apart, and contain no manganese, cast, welds, or attachments of any kind except angle bars. Free from concrete, dirt, and foreign material of any kind.	(45A)	Destroyed Steel Car Sides and Box Car Roofs. Cut to a maximum length of... and a maximum width of... suitable for use in super presses and shears without additional preparation.
(30)	Sheet Scrap, No. 1. Under 3/16 inch thick, may include hoops, band iron and/or steel, scoops and/or shovels (free of wood). Must be free from burnt or metal coated material, cushion, or other similar springs.		
(31)	Sheet Scrap, No. 2. Galvanized or tinned material and/or gas retorts, and/or any other iron or steel material not otherwise classified.		
(32)	Steel, Tool. (Specify kind in offering.)		
(33)	Steel, Manganese. All kinds of manganese, rail, guard rails, frogs and/or switch points, cut or uncut.		
(34)	Steel, Spring. Coil and/or elliptical, minimum thickness 1/4 inch, may be assembled or cut apart.		
(34A)	Steel, Spring. Coil only.		

**Specifications in force as of publication date.*

Guidelines for Glass Cullet: GC-2016

Container Glass Cullet Specifications

Preamble

These standards and practices apply to container glass cullet for purchase or sale in the United States and Canada. Transactions covering shipments to or from other countries may also be in accordance with these standards and practices and may be modified by mutual agreement between buyer and seller. These specifications are guidelines for buying and selling container glass cullet and always subject to the buyer and seller's agreement.

Scrap Glass Definitions

Container Glass Cullet: crushed or whole scrap soda-lime-silica container glass.

Unprocessed Container Glass Cullet: broken or whole scrap glass containers that comply with the proper ISRI glass specifications.

Processed (Furnace Ready) Container Glass Cullet: crushed and whole contaminate-free scrap container glass that complies with the proper ISRI glass specifications.

Organic Matter: consists of organic materials that are non-container glass items; for example, paper labels should not exceed 0.2%.

Ferrous Materials: are magnetic metals, i.e. steel, iron, etc., and therefore must be removed during scrap glass processing.

Non-ferrous Materials: are non-magnetic metals, i.e. aluminum, lead, copper, etc., and therefore must be removed during glass processing.

The Purchase Agreement

Each transaction covering the purchase or sale of container glass cullet should be confirmed in writing and include agreement on the following items:

1. Product

Where possible, each container glass cullet grade shall be specified in accordance with the grade as defined.

2. Quantity

Where possible, the quantity shall always be specified in terms of a definite number of tons of 2,000 pounds each.

A. If the quantity is specified in tons, the order shall be considered completed when aggregate shipments are 5% under or over the quantity ordered.

B. If the quantity is specified in carloads or truckloads, a "load" shall be defined as a truck, trailer, or railroad car loaded to full visible capacity not to exceed established legal weight limits.

3. Packaging

It should be stated whether shipped units are to be in boxes, or in bulk by railroad car, truck, or trailer. Where possible, approximate weights should be specified.

4. Price Units

The price agreed upon shall be clearly stated in US dollars and cents per 2,000 pounds or in US dollars and cents per hundred weight.

5. Terms

Terms shall be "net cash 30 days after date of shipment" unless otherwise agreed upon.

Arbitration

In the event of a total disagreement between buyer and seller, the dispute should be submitted to ISRI arbitration.

In all cases, the cost of arbitration shall be borne by the party found to be at fault, or split in the event of compromise, as determined by the arbitrators.

UNPROCESSED FLINT CONTAINER GLASS CULLET SPECIFICATIONS

Composition: Soda-lime-silica beverage or food container glass.

Cullet Colors Segregation: Flint Cullet

Flint	95-100%
Amber	0-5%
Green	0-5%
Other Colors	0-5%

Size: Cullet may be broken but not pulverized.

Moisture: Cullet should be free of excess moisture.

Contaminant Listings:

Outthrow Materials: Normal container labels; ring and metal closures where processing capabilities permit.

Prohibitive Materials: Non-acceptable items include non-container glass (vision ware, light bulbs, crystal, windows, mirrors, drinking glasses, ceramic, milk glass, etc.) metals, ores, minerals, bricks, clay, grinding and refractory materials, rocks, clay and ceramic closures.

General: The quality of the unprocessed flint container glass cullet must be such that after beneficiation with a conventional container glass cullet processor it will be suitable for the production of glass containers.

UNPROCESSED AMBER CONTAINER GLASS CULLET SPECIFICATIONS

Composition: Soda-lime-silica beverage or food container glass.

Cullet Colors Segregation: Amber Cullet

Amber	90-100%
Flint	0-5%
Green	0-5%
Other Colors	0-5%

Size: Cullet may be broken but not pulverized.

Moisture: Cullet should be free of excess moisture.

Contaminant Listings:

Outthrow Materials: Normal container labels; ring and metal closures where processing capabilities permit.

Prohibitive Materials: Non-acceptable items include non-container glass (vision ware, light bulbs, crystal, windows, mirrors, drinking glasses, ceramic, milk glass, etc.) metals, ores, minerals, bricks, clay, grinding and refractory materials, rocks, clay and ceramic closures.

General: The quality of the unprocessed amber container glass cullet must be such that after beneficiation with a conventional container glass cullet processor it will be suitable for the production of glass containers.

UNPROCESSED GREEN CONTAINER GLASS CULLET SPECIFICATIONS

Composition: soda-lime-silica beverage or food container glass.

Cullet Colors Segregation: Green Cullet

Green	90-100%
Flint	0-10%
Amber	0-10%
Other Colors	0-5%

Size: Cullet may be broken but not pulverized.

Moisture: Cullet should be free of excess moisture.

Contaminant Listings:

Outthrow Materials: Normal container labels; ring and metal closures where processing capabilities permit.

Prohibitive Materials: Non-acceptable items include non-container glass (vision ware, light bulbs, crystal, windows, mirrors, drinking glasses, ceramic, milk glass, etc.) metals, ores, minerals, bricks, clay, grinding and refractory materials, rocks, clay and ceramic closures.

General: The quality of the unprocessed green container glass cullet must be such that after beneficiation with a conventional container glass cullet processor it will be suitable for the production of glass containers.

PROCESSED (FURNACE READY) FLINT CONTAINER GLASS CULLET SPECIFICATIONS

Composition: Soda-lime-silica container glass.

Container Glass Cullet Colors Segregation: Flint Cullet

Flint	95-100%
Amber	0-5%
Green	0-1%
Other Colors	0-5%
Total NON-Flint Cullet	<5%

Size: Various sizes from whole glass containers to -100 Mesh. However, the ideal material size is 3/8" to 3/4" with a 10% minimum of fine particles. Material size is based upon buyer and seller's agreement.

Contaminant Listings:

Outthrow Materials: Organic Matter, allowable percentage based upon buyer and seller's agreement.

Prohibitive Materials:

- Ferrous Metals
- Nonferrous Metals

Ceramics (such as cups, saucers, dinnerware, pottery, etc.)

Other Glass (for example, plate window glass, heat-resistant glass—such as Pyrex—and lead-based glass—such as crystal ware, television tubes, vision ware, etc.)

Other Materials (such as bricks, rocks, etc.)

PROCESSED (FURNACE READY) AMBER CONTAINER GLASS CULLET SPECIFICATIONS

Composition: Soda-lime-silica container glass

Container Glass Cullet Colors Segregation: Amber Cullet

Amber	90-100%
Flint	0-10%
Green	0-10%
Other Colors	0-5%
Total NON-Amber Cullet	<10%

Size: Various sizes from whole glass containers to -100 Mesh. However, the ideal material size is 3/8" to 3/4" with a 10% minimum of fine particles. Material size is based upon buyer and seller's agreement.

Contaminant Listings:

Outthrow Materials: Organic Matter, allowable percentage based upon buyer and seller's agreement.

Prohibitive Materials:

Ferrous Metals

Nonferrous Metals

Ceramics (such as cups, saucers, dinnerware, pottery, etc.)

Other Glass (for example, plate window glass, heat-resistant glass—such as Pyrex—and lead-based glass—such as crystal ware, television tubes, vision ware, etc.)

Other Materials (such as bricks, rocks, etc.)

PROCESSED (FURNACE READY) GREEN CONTAINER GLASS CULLET SPECIFICATIONS

Composition: Soda-lime-silica container glass

Container Glass Cullet Colors Segregation: Green Cullet

Green	70-100%
Flint	0-15%
Amber	0-15%
Other Colors	0-10%
Total NON-Green Cullet	<30%

The color green typically consists of a variety of shades, for example: emerald green or lime green.

Size: Various sizes from whole glass containers to -100 Mesh. However, the ideal material size is 3/8" to 3/4" with a 10% minimum of fine particles. Material size is based upon buyer and seller's agreement.

Contaminant Listings:

Outthrow Materials: Organic Matter, allowable percentage based upon buyer and seller's agreement.

Prohibitive Materials:

Ferrous Metals

Nonferrous Metals

Ceramics (such as cups, saucers, dinnerware, pottery, etc.)

Other Glass (for example, plate window glass, heat-resistant glass—such as Pyrex—and lead based glass—such as crystal ware, television tubes, vision ware, etc.)

Other Materials (such as bricks, rocks, etc.)

Guidelines for Paper Stock: PS-2016–Domestic Transactions

Paper Stock: Domestic Transactions

Preamble

These standards and practices apply to paper stock for repulping 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. Arbitrary deductions, cancellations and/or rejections 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 order shall be considered completed when aggregate shipments are 5% 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 shipping 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 headers may 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, railcars and trucks shall be free from objectionable materials and odors, 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 cause for rejection.
- d. Paper stock shall be loaded in accordance with industry safety best practices.

Please refer to the following guide for valuable safety information: <http://www.isri.org/safeshipping>

6. Shipping Notice/Bill of Lading Shipping by Truck

A bill of lading or shipping notice shall accompany each shipment to the Buyer and should include the following:

- a. Date of shipment
- b. Release number (if applicable)

- c. Number of bales/rolls
- d. Grade of paper
- e. Name of trucking company, trailer number and driver's signature
- f. Shipper's signature

Shipping by Rail

When shipping by railcar, a bill of lading with shipping instructions shall be provided to the railroad and to the Buyer immediately upon release of the railcar and these documents should include the following:

- a. Date of shipment
- b. Release number (if applicable)
- c. Number of bales/rolls
- d. Grade of paper
- e. Car number
- f. Weighing instructions
- g. Routing
- h. Destination
- i. Shipper's signature

7. Invoicing

Invoices, if required, should conform to instructions on the order and include the following data:

- a. Date of shipment
- b. Railcar or truck number
- c. Customer's order number
- d. Release Number (if applicable)
- e. Shipper's invoice number
- f. FOB point
- g. Number of units (bales, rolls, skids etc.)
- h. Weight and grade
- i. Price and extension
- j. Payment terms

8. Rejection

When notified of a rejection, the Seller must, within two business days, advise the Buyer as to which of the following procedures the Seller has decided upon:

- a. Agree with the Buyer to a compromise acceptance and settlement.
- b. Inspect the quality of the rejected material. The inspection and final disposition by the Seller shall take place within three business days of the notification. By mutual agreement, this time limit may be exceeded.
- c. Order reshipment of the material.
- d. Request that the Buyer agree to submit the rejected shipment to arbitration.

III. Fulfillment by the Buyer

The practice of the Buyer shall be in accordance with the following:

Upon receipt of the shipment, the Buyer is to make all possible effort to inspect the contents while it is still loaded.

- a. **Acceptable Loads** (i.e. quality of paper stock, weight, bale integrity, moisture, order quantity, etc.)

- ä 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.

- b. **Unacceptable Loads** (i.e. quality of paper stock, weight, bale integrity, moisture, order quantity, etc.)

- ä if the shipment does not appear to be in accordance with the order, the shipping notice or any other parameters as established between the Buyer and the Seller, the Buyer shall **immediately** notify the Seller.

- ä 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.

Buyer has 21 days to downgrade or reject

- ä if the Buyer, at any time with **21** calendar days after receipt of a shipment, finds objectionable materials heretofore 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.

- ä in the event of a rejection, the Buyer shall be responsible for any paper stock used by the Buyer, and the attendant freight, 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 "delivered" 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.

- c. Any excess freight charges accruing on a shipment due to the failure to the Seller to adhere to the purchase agreement is the liability of the Seller.
- d. Any excess freight charges accruing on a shipment due to the failure of the Buyer to adhere to the purchase agreement is the liability of the Buyer.

3. Weight Discrepancies

No adjustments shall be made on any shipment of paper stock when the weight variation is 1% or less.

If the variation exceeds 1% the Seller may initiate a Weight Review by submitting a certified scale weight (showing the gross, tare and net of the load) and/or a loading tally showing individual bale weights. The Buyer shall then review the data and either:

- a. adjust the received weight, or
- b. decline the appeal, in which case the Buyer's weight shall prevail.

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.

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 papers that are so manufactured or treated or are in such a form as to be unsuitable for consumption as the grade specified."

Prohibitive Materials

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

- a. Any materials which by their presence in a packing of paper stock, in excess of the amount allowed, will make the pack unusable 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 wastes and poisonous or other harmful substances or liquids.
- d. Wax is a Prohibitive unless accepted and pre-approved by the Buyer.

A material can be classified as an "Outthrow" in one grade and as a "Prohibitive Material" in another grade. Carbon paper, for instance, is "UNSUITABLE" in Mixed Paper and is, therefore, classified as an "Outthrow;" whereas it is "UNUSABLE" in White Ledger and in this case is classified as a "Prohibitive Material."

Other Acceptable Papers

The term "Other Acceptable Papers" as used throughout this section is defined as "all other papers that are deemed acceptable by the buyer and allowed in that buyer's pack up to the percentage allowed."

Glossary of Terms

A supplemental glossary of paper stock terms is located at the end of the Domestic Transactions section. The purpose of this limited 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, sorted mixture of various qualities of paper not limited as to type of fiber content.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(3) Hard Mixed Paper (HMP)

Consists of a clean, sorted mixture of various qualities of paper containing less than 10% groundwood content.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	3%

(4) Boxboard Cuttings

Consists of new cuttings of paperboard used in the manufacture of folding cartons, set-up boxes and similar box-board products.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(5) Mill Wrappers

Consists of paper used as outside wrap for rolls, bundles, or skids of finished paper.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	3%

(6) Old Newspaper

Consists of sorted 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%

(7) Regular News, De-ink Quality (#7 ONP)

Consists of sorted, fresh newspapers, not sunburned, and other acceptable papers. This grade may contain magazines.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	3%
Other acceptable papers may not exceed	20%

(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%

(9) Over-Issue News (OI or OIN)

Consists of unused, overrun newspapers printed on newsprint, containing not more than the normal percentage of rotogravure and colored sections.

Prohibitive Materials	None permitted
Outthrows plus prohibitives	None permitted

(10) Magazines (OMG)

Consists of coated magazines, catalogues, and similar printed materials. May contain a small percentage of uncoated news-type paper.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	3%

(11) Old Corrugated Containers (OCC)

Consists of corrugated containers having liners of either test liner or kraft.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(12) Double-Sorted Old Corrugated (DS OCC)

Consists of double-sorted corrugated containers, generated from supermarkets and/or industrial or commercial facilities, having liners of test liner or kraft. Material has been specially sorted to be free of boxboard, off-shore corrugated, plastic, and wax.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(13) New Double-Lined Kraft Corrugated Cuttings (DLK)

Consists of new corrugated cuttings having liners of either test liner or kraft. Treated medium or liners, insoluble adhesives, butt rolls, slabbed or hogged medium, are not acceptable in this grade.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(14) Fiber Cores

Consists of paper cores made from either recycled paperboard and/or linerboard, single or multiple plies. Metal or plastic end caps, wood plugs, and textile residues are not acceptable in this grade.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(15) Used Brown Kraft

Consists of brown kraft bags free of objectionable liners and original contents.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(16) Mixed Kraft Cuttings

Consists of new brown kraft cuttings, sheets and bag scrap free of stitched paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	.1%

(17) Carrier Stock

Consists of printed or unprinted, unbleached new beverage carrier sheets and cuttings. May contain wet strength additives.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(18) New Colored Kraft

Consists of new colored kraft cuttings, sheets and bag scrap, free of stitched papers.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(19) Kraft Grocery Bag (KGB)

Consists of new brown kraft bag cuttings, sheets and misprint bags.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(20) New Kraft Multi-Wall Bag

Consists of new brown kraft multi-wall bag cuttings, sheets, and misprint bags, free of stitched papers.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(21) New Brown Kraft Envelope Cuttings

Consists of new unprinted brown kraft envelopes, cuttings or sheets.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(22) Mixed Flyleaf Shavings

Consists of trim of magazines, catalogs, inserts and similar printed matter, not limited with respect to groundwood, uncoated or coated stock, and may contain the bleed of cover and insert stock as well as beater-dyed paper and solid color printing.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(23) Telephone Directories

Consists of clean telephone directories printed for or by telephone directory publishers.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(24) White Blank News (WBN)

Consists of unprinted cuttings and sheets of white newsprint or other uncoated white groundwood paper of similar quality.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(25) Groundwood Computer Printout (GW CPO)

Consists of groundwood papers which are used in forms manufactured for use in data processing machines. This grade may contain colored stripes and impact or nonimpact (e.g., laser) computer printing.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(26) Publication Blanks (CPB)

Consists of unprinted cuttings or sheets of white coated or filled groundwood content paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(27) Coated Flyleaf Shavings

Consists of lightly printed trim from magazines, catalogs and similar printed matter, not limited with respect to groundwood, uncoated or coated stock. The bleed of cover, insert card stock, and beater-dyed paper may not exceed 2%.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(28) Coated Soft White Shavings (SWS)

Consists of unprinted, coated, and uncoated shavings and sheets of white groundwood-free printing paper. May contain a small percentage of groundwood.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(29) (Grade not currently in use)**(30) Hard White Shavings (HWS)**

Consists of shavings or sheets of unprinted, untreated white groundwood-free paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(31) Hard White Envelope Cuttings (HWEK)

Consists of groundwood-free cuttings, shavings, or sheets of unprinted, untreated, and uncoated white envelope paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(32) (Grade not currently in use)**(33) New Colored Envelope Cuttings**

Consists of groundwood-free cuttings, shavings, or sheets of untreated, uncoated bleachable colored envelope paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(34) (Grade not currently in use)**(35) Semi Bleached Cuttings**

Consists of sheets and cuttings of unprinted, untreated, groundwood-free paper such as file folder stock, untreated milk carton stock, or manila tag.

Prohibitive Materials	None permitted
Outthrows plus prohibitives 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, manila and pastel colored file folders.

Prohibitive Materials may not exceed	2%
Outthrows plus prohibitives may not exceed	10%

(37) Sorted Office Paper (SOP)

Consists of paper, as typically generated by offices, containing primarily white and colored groundwood-free paper, free of unbleached fiber. May include a small percentage of groundwood computer printout and facsimile paper.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(38) (Grade not currently in use)**(39) Manifold Colored Ledger (MCL)**

Consists of sheets, 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.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(40) Sorted White Ledger (SWL)

Consists of uncoated, printed or unprinted sheets, shavings, guillotined books, and cuttings of white groundwood-free ledger, bond, writing, and other paper which has similar fiber and filler content.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(41) Manifold White Ledger (MWL)

Consists of sheets, shavings, and cuttings of industrially-generated printed or unprinted white groundwood-free paper. All stock must be uncoated.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives 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, guillotined books and cuttings. A reasonable percentage of paper containing fine groundwood may be included.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(44) Coated Groundwood Sections (CGS)

Consists of printed, coated groundwood paper in sheets, sections, shavings or guillotined books. This grade may not include news quality groundwood paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives 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 inks, adhesives or coatings that are insoluble.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(46) Printed Bleached Board

Consists of groundwood-free misprint sheets, cartons and cuttings of bleached board, free from wax, greaseproof lamination, metallic, and inks, adhesives or coatings that are insoluble.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	2%

(47) Unprinted Bleached Board

Consists of groundwood-free unprinted, untreated bleached board cuttings, sheets or rolls, free from wax, greaseproof lamination and adhesives or coatings that are insoluble.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(48) #1 Bleached Cup Stock (#1 Cup)

Consists of untreated cuttings or sheets of coated or uncoated cup base stock. Cuttings with slight bleed may be included. Must be free of wax, poly, and other coatings that are insoluble.

Prohibitive Materials None permitted
Outthrows plus prohibitives may not exceed 1/2 of 1%

(49) #2 Printed Bleached Cup Stock (#2 Cup)

Consists of printed, untreated formed cups, cup die cuts, and misprint sheets of coated or uncoated cup base stock. Glues must be water soluble. Must be free of wax, poly, and other coatings that are insoluble.

Prohibitive Materials None permitted
Outthrows plus prohibitives may not exceed 1%

(50) Unprinted Bleached Plate Stock

Consists of groundwood-free bleached coated or uncoated, untreated and unprinted plate cuttings and sheets.

Prohibitive Materials None permitted
Outthrows plus prohibitives may not exceed 1/2 of 1%

(51) Printed Bleached Plate Stock

Consists of groundwood-free bleached coated or uncoated, untreated printed plates and sheets. Must be free of coatings or inks that are insoluble.

Prohibitive Materials None permitted
Outthrows plus prohibitives may not exceed 1%

(52) Aseptic Packaging and Gable-Top Cartons

Consists of liquid packaging board containers including empty, used, polyethylene (PE)-coated, printed one-side aseptic and gable-top cartons containing no less than 70% bleached chemical fiber and may contain up to 6% aluminum foil and 24% PE film.

Prohibitive Materials may not exceed 2%
Outthrows plus prohibitives 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 utilize large quantities of these grades. Since many paper mills around the world do use these specialty grades, they are being listed with appropriate grade numbers for easy reference.

The Paper Stock Industries 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-S White Waxed Cup Cuttings
- 2-S Printed Waxed Cup Cuttings
- 3-S Poly Coated Cup Stock
- 4-S Polycoated Bleached Kraft-Unprinted
- 5-S Polycoated Bleached Kraft-Printed
- 6-S Polycoated Milk Carton Stock
- 7-S Polycoated Diaper Stock
- 8-S Polycoated Boxboard Cuttings
- 9-S (This Grade No Longer in Use)
- 10-S Printed and/or Unprinted Bleached Sulphate Containing Foil
- 11-S Waxed Corrugated Cuttings
- 12-S Wet Strength Corrugated Cuttings
- 13-S (This Number Not Currently in Use)
- 14-S Beer Carton Scrap
- 15-S Contaminated Bag Scrap
- 16-S Insoluble Glued Free Sheet Paper and/or Board (IGS)
- 17-S White Wet Strength Scrap
- 18-S Brown Wet Strength Scrap
- 19-S Printed and/or Colored Wet Strength Scrap
- 20-S File Stock
- 21-S (This Number Not Currently in Use)
- 22-S Ruled White
- 23-S Flyleaf Shavings Containing Hot Melt Glue
- 24-S (This Number Not Currently in Use)
- 25-S Books with Covers
- 26-S (This Number Not Currently in Use)
- 27-S (This Number Not Currently in Use)
- 28-S (This Number Not Currently in Use)
- 29-S (This Number Not Currently in Use)
- 30-S Plastic Windowed Envelopes
- 31-S Textile Boxes
- 32-S Printed TMP
- 33-S Unprinted TMP
- 34-S Manila Tabulating Cards
- 35-S Sorted Colored Ledger
- 36-S Computer Printout (CPO)

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 are considered contaminants in pulp subs, groundwood and deinking grades.
- BEATER-DYED:** Paper dyed or colored during the paper manufacturing process.
- BLEACHED:** Paper that has been whitened by chemicals.
- BOARDS:** Paperboard 0.006 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 fiber isolated and purified by a chemical digestive process.
- CHIPBOARD:** Uncoated, non-folding paperboard made from a variety of recovered papers, having sufficient strength and structural properties to be used to manufacture game boards, book covers, notebook backing and similar products.
- COATINGS:** A layer of adhesives, clays, varnish or any barrier applied to paper.
- CONTAINERBOARD:** Linerboard 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 linerboard and corrugated medium.
- CUTTINGS:** 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.
- FLYLEAF/SHAVINGS:** 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.
- GILT:** Metallic (gold or silver) inks 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.
- INSOLUBLE GLUES:** Glues that won't dissolve (break down) in water.
- JUTE:** Strong, long-fibered pulp made from hemp.
- KRAFT:** Paper made from sulfate pulp (synonyms: brown and strong).
- LAMINATED:** Paper manufactured by fusing one or more layers of paper together.
- LINERBOARD:** Outside layers of a combination board used to manufacture corrugated shipping containers.
- MANIFOLD:** May denote continuous forms or business forms with several parts (may be interleaved with carbon paper or be carbonless papers).
- 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 (intaglio) process typically used to create the highest quality of smoothness on coated and uncoated papers. Excess quantities are considered an outthrow in grades #7, #8, and #9.
- SECTIONS:** Unbound, unused printed material with full ink coverage.
- SHAVINGS:** Trim from converting and bindery operations.
- SIGNATURES:** 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 pulps made from an acid process.
- SULPHATE:** Papers and boards made from alkaline processed pulps.
- 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-VIOLET (UV) INKS/COATINGS:** Papers having inks or coatings dried by utilizing an ultraviolet radiation method. Considered a contaminant in deinking grades.
- WET STRENGTH:** Papers that have been treated with a moisture-resistant chemical that inhibits pulping.

Guidelines for Paper Stock: PS-2016–Export Transactions

Paper Stock: Export Transactions

Preamble

These standards and practices apply to paper stock for repulping only and are for use in export transactions from 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. Arbitrary deductions, cancellations and rejections by the Buyer are counter to acceptable good trade practice.
3. Seller shall deliver the quality of paper stock agreed upon but shall not be responsible for the use of the paper or for the manufactured product.

I. The Purchase Agreement

Each transaction covering the purchase or sale of paper stock should 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 metric tons of 2,204.6 pounds each, or short tons of 2,000 pounds each.

- a. When the quantity is specified in tons or tonnes, the order shall be considered completed when aggregate shipments are 5% under or over the quantity ordered.
- b. The Buyer and Seller shall establish minimum container-load weights.

2. Grades

Where possible, each grade purchased shall be specified in accordance with the grade as defined in the latest Paper Stock Industries Chapter Standards and Practices Circular. Any deviation from the grades listed in the simplified Circular should be specified and agreed to by both parties.

3. Packing

Unit type, i.e. bales, skids, rolls, pallets, boxes, or bundles 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 acronyms such as: “F.A.S.,” “C&F,” “C.I.F.” or “CY.”

6. Shipping Instructions

Shipping instructions should be provided by the Buyer at the time of the order. Information should include: consignee, notify party, documentation, and inspection requirements. Insurance and freight payment information should be mutually agreed upon.

7. Shipping Period

The shipping period shall be mutually agreed upon by the Buyer and the Seller.

8. Method of Invoicing

Invoicing instructions shall be clearly stated.

II. Fulfillment by the Seller

Practices of the Seller shall be in accordance with the following:

1. Acceptance

All orders shall be confirmed in writing.

2. Grading

Paper stock which is sold under the grade names appearing in the PSI Standards and Practices Circular shall conform to those grading definitions.

3. Packing

Each unit must be sufficiently secured to ensure a satisfactory delivery.

4. Tare

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

5. Loading

Paper stock shall be loaded as follows:

- a. All loads shall consist entirely of one grade of paper stock unless otherwise agreed to. When two or more grades are included in the same shipment, units of each grade shall be kept together in a separate part of the container.
- b. Paper stock must be loaded in a manner that will minimize shifting and breakage. Excessive breakage prior to unloading may be cause for a claim.

6. Shipping Notice

A packing list, shipping advice and/or an invoice shall be sent to the Buyer within 72 hours of the vessel sailing.

7. Invoicing

Invoicing should conform to the instructions on the order and include the following data:

- a. Date of Shipment
- b. Container Number
- c. Steamship Line, Vessel, Voyage Number

- d. Bill of Lading Number
- e. Customer's Order Number
- f. Shipper's Invoice Number
- g. Number of Units etc.
- h. Weight and Grade
- i. Price and Extension
- j. Payment Terms

8. Claims

When notified of a claim, the Seller must, within five business days, advise the Buyer as to which of the following procedures the Seller has decided upon:

- a. Agree with the Buyer to a compromise acceptance and settlement.
- b. Require the opportunity to inspect the quality of the material in question.
- c. Request that the Buyer agree to submit the claim to arbitration.

III. Fulfillment by the Buyer

The practice of the Buyer shall be in accordance with the following:

1. Unloading

After arrival of the shipment, the Buyer is to inspect the contents so far as possible while it is still loaded.

If the shipment appears to be in accordance with the order and shipping notice, the Buyer shall proceed with the unloading.

If the shipment does not appear to be in accordance with the order and shipping notices, or if the quality of the stock is not in accordance with specifications agreed to, the Buyer shall immediately notify the Seller before unloading.

If during the process of unloading, any portion of the shipment not visible in the original inspection is not in accordance with specifications, shipping notice and order, that portion shall be set aside and the Seller immediately notified.

If at any time within 21 days after receipt of shipment, the Buyer, upon opening the bales finds objectionable materials heretofore not visible, he shall immediately notify the Seller

In the event of any claim, the Buyer shall use due diligence to protect all controversial paper stock from external deterioration or contamination.

2. Claims Other Than Quality

The Buyer shall within 10 days of unloading notify the Seller of any necessary changes and shall furnish detailed information with regard to these changes.

3. Rejection

In the event of a rejection, the Buyer shall be responsible for any paper stock used by the Buyer and the freight thereon, other than such quantity as may be considered reasonable for laboratory sampling or testing purposes.

The Buyer must protect the shipment from weather or any other elements until the claim is settled.

IV. Miscellaneous Practices

1. Ownership

If the shipment is purchased on a "delivered destination" 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 by carrier.

2. Demurrage Charges

- a. Any demurrage accrued on a shipment due to the failure of the Seller to ship in accordance with the order, except with respect to quality, is the liability of the Seller.
- b. In the event that a rejection for quality stands, any demurrage accruing on the shipment prior to notification to the Seller shall be the Buyer's liability.
- c. In the event that negotiation of substantiated rejection for quality results in agreement by the Buyer to accept the shipment, then only the demurrage, following notification of the rejection—and including 24 hours after the agreement—becomes the liability of the Seller. Demurrage accruing prior to and including the day of notification becomes the liability of the Buyer.

3. Switching and Freight charges

Any extra switching or excess freight charges accruing on a shipment due to the failure of the Seller to protect the agreed upon minimum rate or to ship in accordance with the agreement is the liability of the Seller.

4. Weight Discrepancies

No debits, credits or adjustments shall be issued on any shipment of paper stock when the weight variation is 2% or less.

In the event that a discrepancy exceeds those mentioned above as "allowable;" the Buyer and Seller shall exchange copies of certified weight in containers. In the event that both parties have such records, and errors cannot be determined, it is recommended that the weight closest to the public carrier's scale weight shall be assumed to be correct, Buyer and Seller should agree on the location of the public carrier's scale prior to shipment. In the absence of such records on the part of one of the parties, the records of the other party shall govern.

5. Moisture Content

All paper stock must be packed air dry. A moisture content of 12% is deemed to be air dry.

Where excess moisture is present in the shipment, the Buyer has the right to request an adjustment. Whenever possible, such adjustment shall be made on an average air dry basis.

6. Replacement of Shipment

In the event that any shipment is rejected due to quality:

Whether or not the shipment is to be replaced is to be decided by mutual agreement between Buyer and Seller.

7. Promptness of Shipment

- a. In the event that Buyer causes shipment to be postponed:

On instructions of the Buyer, the Seller shall have the option of extending the time limit of the order by the same number of days of the postponement, or of canceling that portion of the order on which shipment was postponed. Seller shall promptly notify Buyer of option selected.

- b. In the event that Buyer causes shipment to be postponed:

On instructions of the Seller, the Buyer shall have the option of extending the time limit of the order by the same number of days of the postponement, or of canceling that portion of the order on which shipment was postponed. Buyer shall promptly notify Seller of option selected.

8. Outthrows

Outthrows shall be understood to be all papers that are so manufactured or treated or are in such form as to be unsuitable for consumption as the grade specified.

9. Prohibitive Materials

- a. Any materials which, by their presence in a packing of paper stock, in excess of the amount allowed, make the packing unusable as the grade specified.
- b. Any materials which, by their presence in a package of paper stock, pose a risk of damage to the equipment.

Note: In connection with Items 8 and 9, a material can be classified as an "Outthrow" in one grade and as a "Prohibitive Material" in another grade. Carbon paper, for instance, is "UNSUITABLE" in Mixed Paper and is, therefore, classified as an "Outthrow"; whereas it is "UNUSABLE" in White Ledger and in this case classified as a "Prohibitive Material."

V. Arbitration

In the event of a total disagreement between Buyer and Seller, the dispute should be submitted to ISRI arbitration.

In all cases, the cost of arbitration shall be borne by the party found to be at fault, or split in the event of compromise, as determined by the arbitrators.

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 papers that are so manufactured or treated

or are in such a form as to be unsuitable for consumption as the grade specified."

Prohibitive Materials

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

- a. Any materials which by their presence in a packing of paper stock, in excess of the amount allowed, will make the packaging unusable as the grade specified.
- b. Any materials that may be damaging to equipment.

A material can be classified as an "Outthrow" in one grade and as a "Prohibitive Material" in another grade. Carbon paper, for instance, is "UNSUITABLE" in Mixed Paper and is, therefore, classified as an "Outthrow"; whereas it is "UNUSABLE" in White Ledger and in this case is classified as a "Prohibitive Material."

Other Acceptable Papers

The term "Other Acceptable Papers" as used throughout this section is defined as "all other papers that are deemed acceptable by the buyer and allowed in that buyer's pack up to the percentage allowed."

Glossary of Terms

A supplemental glossary of paper stock terms is located at the end of the Domestic Transactions section. The purpose of this limited 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, sorted mixture of various qualities of paper not limited as to type of fiber content.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(3) Hard Mixed Paper (HMP)

Consists of a clean, sorted mixture of various qualities of paper containing less than 10% groundwood content.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	3%

(4) Boxboard Cuttings

Consists of new cuttings of paperboard used in the manufacture of folding cartons, set-up boxes, and similar boxboard products.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(5) Mill Wrappers

Consists of paper used as outside wrap for rolls, bundles, or skids of finished paper.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	3%

(6) Old Newspaper

Consists of sorted 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%

(7) Regular News, De-ink Quality (#7 ONP)

Consists of sorted, fresh newspapers, not sunburned, and other acceptable papers. This grade may contain magazines.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	3%
Other acceptable papers may not exceed	20%

(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%

(9) Over-Issue News (OI or OIN)

Consists of unused, overrun newspapers printed on newsprint, or securely tied in bundles, containing not more than the normal percentage of rotogravure and colored sections.

Prohibitive Materials	None permitted
Outthrows plus prohibitives	None permitted

(10) Magazines (OMG)

Consists of coated magazines, catalogues, and similar printed materials. May contain a small percentage of uncoated news-type paper.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	3%

(11) Old Corrugated Containers (OCC)

Consists of corrugated containers having liners of either test liner or kraft.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(12) Double-Sorted Old Corrugated (DS OCC)

Consists of double-sorted corrugated containers, generated from supermarkets and/or industrial or commercial facilities, having liners of test liner or kraft. Material has been specially sorted to be free of boxboard, off-shore corrugated, plastic, and wax.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(13) New Double-Lined Kraft Corrugated Cuttings (DLK)

Consists of new corrugated cuttings having liners of either test liner or kraft. Treated medium or liners, insoluble adhesives, butt rolls, slabbed or hogged medium, are not acceptable in this grade.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(14) Fiber Cores

Consists of paper cores made from either recycled paperboard and/or linerboard, single or multiple plies. Metal or plastic end caps, wood plugs, and textile residues are not acceptable in this grade.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(15) Used Brown Kraft

Consists of used brown kraft bags free of objectionable liners and original contents.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(16) Mixed Kraft Cuttings

Consists of new brown kraft cuttings, sheets and bag scrap free of stitched paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(17) Carrier Stock

Consists of printed or unprinted, unbleached new beverage carrier sheets and cuttings. May contain wet strength additives.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(18) New Colored Kraft

Consists of new colored kraft cuttings, sheets and bag scrap, free of stitched papers.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(19) Kraft Grocery Bag (KGB)

Consists of new brown kraft bag cuttings, sheets and misprint bags.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(20) New Kraft Multi-Wall Bag

Consists of new brown kraft multi-wall bag cuttings, sheets, and misprint bags, free of stitched papers.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(21) New Brown Kraft Envelope Cuttings

Consists of new unprinted brown kraft envelopes, cuttings or sheets.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(22) Mixed Flyleaf Shavings

Consists of trim of magazines, catalogs, inserts and similar printed matter, not limited with respect to groundwood, uncoated or coated stock, and may contain the bleed of cover and insert stock as well as beater-dyed paper and solid color printing.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(23) Telephone Directories

Consists of clean telephone directories printed for or by telephone directory publishers.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(24) White Blank News (WBN)

Consists of unprinted cuttings and sheets of white newsprint or other uncoated white groundwood paper of similar quality.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(25) Groundwood Computer Printout (GW CPO)

Consists of groundwood papers which are used in forms manufactured for use in data processing machines. This grade may contain colored stripes and impact or nonimpact (e.g., laser) computer printing.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(26) Publication Blanks (CPB)

Consists of unprinted cuttings or sheets of white coated or filled groundwood content paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(27) Coated Flyleaf Shavings

Consists of lightly printed trim from magazines, catalogs and similar printed matter, not limited with respect to groundwood, uncoated or coated stock. The bleed of cover, insert card stock, and beater-dyed paper may not exceed 2%.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(28) Coated Soft White Shavings (SWS)

Consists of unprinted, coated, and uncoated, shavings and sheets of white groundwood-free printing paper. May contain a small percentage of groundwood.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(29) (Grade not currently in use)**(30) Hard White Shavings (HWS)**

Consists of shavings or sheets of unprinted, untreated white groundwood-free paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(31) Hard White Envelope Cuttings (HWEK)

Consists of groundwood-free cuttings, shavings or sheets of unprinted, untreated and uncoated white envelope paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(32) (Grade not currently in use)**(33) New Colored Envelope Cuttings**

Consists of groundwood-free cuttings, shavings, or sheets of untreated, uncoated bleachable colored envelope paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(34) (Grade not currently in use)**(35) Semi Bleached Cuttings**

Consists of sheets and cuttings of unprinted, untreated, groundwood-free paper such as file folder stock, untreated milk carton stock, or manila tag.

Prohibitive Materials	None permitted
Outthrows plus prohibitives 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, manila and pastel colored file folders.

Prohibitive Materials may not exceed	2%
Outthrows plus prohibitives may not exceed	10%

(37) Sorted Office Paper (SOP)

Consists of paper, as typically generated by offices, containing primarily white and colored groundwood-free paper, free of unbleached fiber. May include a small percentage of groundwood computer printout and facsimile paper.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	5%

(38) (Grade not currently in use)**(39) Manifold Colored Ledger (MCL)**

Consists of sheets, 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.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(40) Sorted White Ledger (SWL)

Consists of uncoated, printed or unprinted sheets, shavings, guillotined books, and cuttings of white groundwood-free ledger, bond, writing, and other paper which has similar fiber and filler content.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(41) Manifold White Ledger (MWL)

Consists of sheets, shavings, and cuttings of industrially-generated printed or unprinted white groundwood-free paper. All stock must be uncoated.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives 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, guillotined books and cuttings. A reasonable percentage of paper containing fine groundwood may be included.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	2%

(44) Coated Groundwood Sections (CGS)

Consists of printed, coated groundwood paper in sheets, sections, shavings or guillotined books. This grade may not include news quality groundwood paper.

Prohibitive Materials	None permitted
Outthrows plus prohibitives 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 inks, adhesives or coatings that are insoluble.

Prohibitive Materials may not exceed	1/2 of 1%
Outthrows plus prohibitives may not exceed	2%

(46) Printed Bleached Board

Consists of groundwood-free misprint sheets, cartons and cuttings of bleached board, free from wax, greaseproof lamination, metallic, and inks, adhesives or coatings that are insoluble.

Prohibitive Materials may not exceed	1%
Outthrows plus prohibitives may not exceed	2%

(47) Unprinted Bleached Board

Consists of groundwood-free unprinted, untreated bleached board cuttings, sheets or rolls, free from wax, greaseproof lamination and adhesives or coatings that are insoluble.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(48) #1 Bleached Cup Stock (#1 Cup)

Consists of untreated cuttings or sheets of coated or uncoated cup base stock. Cuttings with slight bleed may be included. Must be free of wax, poly, and other coatings that are insoluble.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(49) #2 Printed Bleached Cup Stock (#2 Cup)

Consists of printed, untreated formed cups, cup die cuts, and misprint sheets of coated or uncoated cup base stock. Glues must be water soluble. Must be free of wax, poly, and other coatings that are insoluble.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(50) Unprinted Bleached Plate Stock

Consists of groundwood-free bleached coated or uncoated, untreated and unprinted plate cuttings and sheets.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1/2 of 1%

(51) Printed Bleached Plate Stock

Consists of groundwood-free bleached coated or uncoated, untreated printed plates and sheets. Must be free of coatings or inks that are insoluble.

Prohibitive Materials	None permitted
Outthrows plus prohibitives may not exceed	1%

(52) Aseptic Packaging and Gable-Top Cartons

Consists of liquid packaging board containers including empty, used, polyethylene (PE)-coated, printed one-side aseptic and gable-top cartons containing no less than 70% bleached chemical fiber and may contain up to 6% aluminum foil and 24% PE film.

Prohibitive Materials may not exceed	2%
Outthrows plus prohibitives 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 utilize large quantities of these grades. Since many paper mills around the world do use these specialty grades, they are being listed with appropriate grade numbers for easy reference.

The Paper Stock Industries 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-S	White Waxed Cup Cuttings
2-S	Printed Waxed Cup Cuttings
3-S	Poly Coated Cup Stock
4-S	Polycoated Bleached Kraft-Unprinted
5-S	Polycoated Bleached Kraft-Printed
6-S	Polycoated Milk Carton Stock
7-S	Polycoated Diaper Stock
8-S	Polycoated Boxboard Cuttings
9-S	(This Grade No Longer in Use)
10-S	Printed and/or Unprinted Bleached Sulphate Containing Foil
11-S	Waxed Corrugated Cuttings
12-S	Wet Strength Corrugated Cuttings
13-S	(This Number Not Currently in Use)
14-S	Beer Carton Scrap
15-S	Contaminated Bag Scrap
16-S	Insoluble Glued Free Sheet Paper and/or Board (IGS)
17-S	White Wet Strength Scrap
18-S	Brown Wet Strength Scrap
19-S	Printed and/or Colored Wet Strength Scrap
20-S	File Stock
21-S	(This Number Not Currently in Use)
22-S	Ruled White
23-S	Flyleaf Shavings Containing Hot Melt Glue
24-S	(This Number Not Currently in Use)
25-S	Books with Covers
26-S	(This Number Not Currently in Use)
27-S	(This Number Not Currently in Use)
28-S	(This Number Not Currently in Use)
29-S	(Not currently in use)
30-S	Plastic Windowed Envelopes
31-S	Textile Boxes
32-S	Printed TMP
33-S	Unprinted TMP
34-S	Manila Tabulating Cards
35-S	Sorted Colored Ledger
36-S	Computer Printout (CPO)

Guidelines for Plastic Scrap: P-2016

Baled Recycled Plastic Scrap Commercial Guidelines

General Information

Commercial Guidelines for Baled Recycled Plastic Scrap were developed to provide industry-wide quality standards. These standards will facilitate commodity trading of these materials. They will also focus suppliers of such material on the quality requirements of their customers.

Product

These guidelines are designed with the potential for dealing with all recycled plastic in bale form. Initial specifications refer only to bottles. The code framework allows for generation of guidelines for all types of plastic packaging materials (including rigids and flexibles) with room for expansion to other plastic products and resins including those which are used to produce durable goods. Guidelines for those products may be added at a later date.

Bale Density

Bales shall be compressed to a minimum density of 10 pounds per cubic foot and a maximum density to be determined by individual contract between Buyer and Seller. Increased density may improve transportation efficiency, but over-compression may adversely affect the ability of a Buyer to separate, sort, and reprocess the material.

Bale Tying Material

Bale wires, ties, or straps shall be made of non-rusting or corroding material.

Bale Integrity

Bale integrity must be maintained through loading, shipping, handling, and storage. Distorted or broken bales are difficult to handle. They are unacceptable and may result in downgrading, rejection, or charge back.

Allowable Contamination

Unspecified materials must not exceed 2% of total bale weight. Bales which contain over 2% will be subjected to reduction in the contracted price of the material as well as charges for disposal of the contaminants. The reduced percentage will vary depending upon the amount and type of contamination. Quality of the baled plastic is the primary factor which determines the value.

Prohibited Material

Certain materials are understood to be specified as "prohibited." Such materials will render the bale "non-specification" and may cause some customers to reject the entire shipment. These may include plastic materials which have a deleterious effect on each other when reprocessed, and materials such as agricultural chemicals, hazardous materials, flammable liquids and/or their containers, and medical waste.

Liquids

Plastic containers/materials should be empty and dry when baled. The bale should be free of any free flowing liquid of any type.

General

Shipments should be essentially free of dirt, mud, stones, grease, glass, and paper. The plastic must not have been damaged by ultraviolet exposure. Every effort should be made to store the material above ground and under cover. A good faith effort on the part of the supplier will be made to include only rinsed bottles which have closures removed.

Definitions for Plastic Materials

Baled

Loose material that is compressed and bound together.

Densified

Material that is compressed through mechanical means. Typically applies to foam (purged) and film (turned into "popcorn"). Densified material is typically sent on for additional processing.

Durable Goods

Electrical and electronic equipment, appliances, automobiles (called "transportation equipment" in ISO 15270), construction products (included in ISO 15270) and industrial equipment (included in ISO 15270)

Flake

A generic term that refers to size and shape. Typically consists of plastic bottles or plastic film typically ground into a chip.

Mixed Load Plastic

Shredded plastic that contains various types of resins and requires mechanical sorting to reach final specification. Typically baled and not granulated. Types and grades included in the bale to be agreed to by buyer and seller.

Plastic Bottle

A rigid container which is designed with a neck that is smaller than the body. Normally used to hold liquids and emptied by pouring.

Plastic Film

A thin flexible sheet which does not hold a particular shape when unsupported.

Postconsumer

Products generated by a business or consumer that have served their intended end use and have been separated or diverted from the solid waste stream for the purpose of recycling.

Purge

Plastic that has been melted and has hardened. This material has no set shape or form.

Recovered Plastic

Plastic materials which have been recovered or diverted from the solid waste stream. Does not include materials generated from and commonly reused within an original manufacturing process.

Recycled Plastic

Plastics composed of either post-consumer or recovered material or both.

Regrind

A generic term that refers to hard rigid plastic typically ground into a chip. Typically consists of material that is the same grade, color and type. It can be used in extrusion or molding processes.

Rigid Plastic Container

A package (formed or molded container) which maintains its shape when empty and unsupported.

Shred

Size reduced material. The typical upper size can be between 3" to 12", although in some cases the upper size can be as small as about 1". Size range, characteristics should be agreed to between buyer and seller.

Shredded Plastic

Generic term. Material that contains a high plastic content. Typically contains 90% plastic content.

Shredder Residue

The remaining mixture after the majority of metals have been recovered from durable goods "shred." The mixture can contain plastics, rubber, wood, glass, rocks, dirt, paper, film, textiles, wires and other metals missed during the metal recovery process. The predominant single material is often plastic, which can vary from about 15% to about 90% depending on the type of durable goods and the steps taken in the metal separation process. Size range, characteristics should be agreed to between buyer and seller.

Common issues for this category:

The following list applies to all materials listed in this category.

- a Caps, enclosures, and labels are acceptable.
- a Product need not be washed, but preferred.

PET Mixed Bottles

Consists of mixed, postconsumer PET food and beverage bottles and jars from curbside collection programs. May include up to 30% green tinted bottles. Thermoform container content subject to agreement between buyer and seller.

Product: Bottles only

Source: Postconsumer material

Contamination: Total allowed—2% listed below
 —Non-specified plastic or non-plastic material
 —Injection grade (examples include buckets, drums, or crates)

General: Refer to the General Information section for more information.

HDPE Mixed Color Bottles

Consists of mixed colored, postconsumer #2 HDPE containers from household products typically collected in residential recycling programs. Examples include detergent, orange juice, and shampoo bottles. Should be free of wide-mouth containers such as margarine or whipped cream tubs. Motor oil and herbicide/insecticide bottles are not allowed.

Product: Bottles only

Source: Postconsumer material

Contamination: Total allowed—2% listed below
 —Non-specified plastic or non-plastic material
 —Injection grade (examples include butter tubs, buckets, drums, or crates)

General: Refer to the General Information section for more information.

HDPE Natural Bottles

Consists of uncolored, postconsumer #2 HDPE containers from household products typically collected in residential recycling programs. Examples include milk, vinegar, or ammonia bottles. Should be free of colored containers (including white) as well as any wide-mouth containers. Herbicide/insecticide bottles are not allowed.

Product: Bottles only

Source: Postconsumer material

Contamination: Total allowed—2% listed below
 —Non-specified plastic or non-plastic material
 —Injection grade (examples include Tupperware)
 —Colored material

General: Refer to the General Information section for more information.

Mixed Unsorted 1-7 Bottles and Containers

This grade primarily consists of PET bottles and HDPE bottles from residential recycling programs in which no positive sorting of any bottles has occurred and only the Mixed Bulky Rigid Plastics have been removed. Acceptable materials include soda bottles, milk jugs, shampoo bottles, yogurt cups, and other food and beverage containers. Non-bottle containers may consist of items such as cups, trays, clamshells, and tubs. Glass bottles and tin or aluminum cans are not allowed in this grade.

Product: Mixed household items

Source: Postconsumer material

Contamination: Total allowed—2% listed below
 —Bulky rigid plastics such as crates, buckets, pails, toys, furniture, etc.
 —Non-specified plastic or non-plastic material

General: Refer to the General Information section for more information.

Mixed Sorted 3-7 Bottles and Containers

This grade primarily consists of mixed bottles and containers from residential recycling programs in which most of the PET bottles, HDPE bottles, and Mixed Bulky Rigid Plastics have been positively sorted out. This grade may include some PET and HDPE but primarily consists of all leftover plastics materials remaining after they have been picked out. Non-bottle containers may consist of items such as cups, trays, clamshells, and tubs. Glass bottles and tin or aluminum cans are not allowed.

Product: Mixed household items

Source: Postconsumer material

Contamination: Total allowed—2% listed below
 —Bulky rigid plastic such as crates, buckets, pails, toys, furniture, etc.
 —Non-specified plastic or non-plastic material

General: Refer to the General Information section for more information.

Mixed Bulky Rigid Plastics

This grade primarily consists of non-bottle PE and PP bulky rigid plastic items such as plastic drums, crates, buckets, baskets, toys, refuse totes, and lawn furniture typically collected in a residential recycling MRF. This grade should not contain any mixed 1-7 bottles and containers.

Product: Mixed household items

Source: Postconsumer material

Contamination: Total allowed—2% listed below
 –Non-specified plastic or non-plastic material

General: Refer to the General Information section for more information.

Mixed Color HDPE Buckets

Shall consist of HDPE buckets and “pail-grade” 5-8 melt-injection-grade HDPE recovered from any residential, construction, or commercial application. Original product such as paint or food must be emptied from unit, but dry surface residue is allowed. Metal handles are acceptable. Standard bale will include white or other colored 5-gallon buckets.

Product: Buckets recovered from a sorting facility

Source: Residential and commercial materials

Contamination: Total allowed—5% listed below
 –Other types of HDPE containers or bottles
 –Large rigid plastics such as crates, drums, toys, lawn furniture, etc.
 –Nonspecified plastic or nonplastic material such as metal, paper, or glass.

General: Refer to the General Information section for more information.

Mixed Color HMW HDPE Drums

Shall consist of high-molecular-weight HDPE drums or barrels recovered from any commercial application. Original product such as solvents or chemicals must be emptied from the unit, and the unit must be rinsed in accordance with federal and state regulations prior to baling. Plastic lids and spouts are acceptable. Standard bale will include blue, white, or other colored 55-gallon drums.

Source: Commercial materials

Contamination: Total allowed—2% listed below
 –Other types of HDPE containers or bottles
 –Large rigid plastics such as crates, buckets, pails, toys, lawn furniture, etc.
 –Nonspecified plastic or nonplastic material such as metal, paper, or glass.
 –Metal lids and spouts

General: Refer to the General Information section for more information.

Bulky Rigid

Description: Any large rigid #2 HDPE and/or #5 PP plastic bulky item, created through a positive-sort from curbside, drop-off, or other public or private recycling collection program. Examples include crates, buckets, baskets, totes, and lawn furniture. Buckets/pails with metal handles can be included. This bale should not contain mixed #1-7 bottles or containers, toys with metal, drums, jugs (either HMW or 55 gallons), or PVC/vinyl.

Product: Bulky rigid plastic.

Source: Postconsumer material created from a positive sort from a curbside, drop-off, or other public or private recycling collection program.

Contamination: Total allowed—10% by weight.
 –Any plastic items or packaging including #1 PET, #3 PVC, #6 PS, #7 Other (4% maximum acceptable);
 –Metal (2% maximum acceptable);
 –Paper (2% maximum acceptable);
 –Liquid/other residues (2% maximum acceptable).

The following items are not allowed: HMW drums or 55 gallon drums; metal on toys; pallets with metal; film and bags; wood; glass; or electronic scrap.

Refer to the “Prohibited Material” section for more information.

General: Refer to the General Information section for more information.

Tubs and Lids Without Bulky

Description: Any whole container with a #2 HDPE, #5 PP, and/or #4 LDPE resin code generated from a positive-sort curbside, drop off, or other public or private recycling collection program. Tubs are containers that have a neck or mouth similar in size to its base. Lids are caps for tubs that have a fastening feature other than threads. Examples include yogurt cups, margarine tubs, ice cream tubs, and cold drink cups (transparent, cold serve). Nursery pots are not acceptable.

Bulky rigid plastics are not allowed.

Product: Tubs and lids.

Source: Postconsumer material generated from a curbside, drop off, or other public or private recycling collection program.

Contamination: Total allowed—10% by weight.
 –#1 PET bottles;
 –#1 PET or #3 PVC thermoform packaging;
 –#2 HDPE pails and buckets;
 –#3 PVC (polyvinyl chloride);
 –#6 PS (polystyrene);
 –#7 Other;
 –Paper;
 –Liquids.

The following items are not allowed (0% allowed): Film and bags; metal handles; wood; glass; or electronic scrap.

Refer to the “Prohibited Material” section for more information.

General: Refer to the “General Information” section for more information.

Tubs and Lids With Bulky

Description: Any whole container, with a #2 HDPE, #5 PP, and/or #4 LDPE resin code generated from a positive-sort curbside, drop off, or other public or private recycling collection program. Tubs are containers that have a neck or mouth similar in size to its base. Lids are caps for tubs that have a fastening feature other than threads. Examples include yogurt cups, margarine tubs, ice cream tubs, and cold drink cups (transparent, cold serve). Nursery pots are not acceptable.

Bulky rigid plastics are allowed.

Product: Tubs and lids.

Source: Postconsumer material generated from a curbside, drop-off, or other public or private recycling collection program.

Contamination: Total allowed—10% by weight.
 –#1 PET bottles;
 –#1 PET or #3 PVC thermoform packaging;
 –#2 HDPE pails and buckets;
 –#3 PVC (polyvinyl chloride);
 –#6 PS (polystyrene);
 –#7 Other;
 –Paper;
 –Liquids.

The following items are not allowed: Film and bags; metal handles; wood; glass; or electronic scrap.

Refer to the “Prohibited Material” section for more information.

General: Refer to the “General Information” section for more information.

Premium Film

This grade consists of 100% clean, clear, dry, post-industrial film consisting of LLDPE film or LDPE film.

Product: Film

Source: Post-industrial

Contamination: 0% contamination allowed.

Prohibited Items: NO metal, food, trash, bottles, cans, glass, wood, oil, rocks, labels or loose paper. NO rigid plastics such as PET, PP, PVC, coated or laminated film.

General: Refer to the General Information section for more information.

A+ Grade Film

This grade consists of 99% clean, clear, dry, post commercial and/or post-industrial film consisting of LLDPE pallet stretch film. May contain small amount of LDPE film.

Product: Film

Source: Post-commercial or Post-Industrial

Contamination: 1-2% color LDPE or LLDPE film, less than 1% of stickers and labels allowed

Prohibited Items: NO metal, food trash, bottles, cans, glass, wood, oil, rocks, and loose paper. NO rigid plastics such as PET, PP, PVC, coating or laminated film.

General: Refer to the General Information section for more information.

A Grade Film

This grade consists of 95% clean, dry, clear, natural LDPE or LLDPE film. Any mix of post commercial or post-industrial film. Minimal amount of HDPE allowed.

Product: Film

Source: Post-commercial or Post-Industrial

Contamination: Total contaminants should not exceed approximately 5% of color, print, labels. Less than 2% clean HDPE bags allowed. Less than 1% strapping allowed.

Prohibited Items: NO metal, food trash, bottles, cans, glass, wood, oil, rocks, and loose paper. NO rigid plastics such as PET, PP, PVC, coating or laminated film.

General: Refer to the General Information section for more information.

B Grade Film

This grade consists of 80% clear, up to 20% color, clean, natural LDPE and/or LLDPE films. Any mix of post-commercial or post-industrial film is allowed. Minimal amounts HDPE or strapping allowed.

Product: Film

Source: Post-commercial and/or post-industrial

Contamination: Total contaminants not to exceed approximately 10% consisting of strapping, PP film, injection grade tubs, or loose paper.

Prohibited Items: NO food, trash, cans, glass, wood, oil, or rocks

General: Refer to the General Information section for more information.

C Grade Film

This grade consists of 50% clear, 50% color, dry, LDPE or LLDPE films. Can be any mix of post-commercial or post-industrial film. HDPE or PP films are allowed.

Product: Film

Source: Post-commercial and/or post-industrial.

Contamination: Total contaminants not to exceed approximately 15%

Prohibited Items: NO food, trash, cans, glass, wood, oil, or rocks.

General: Refer to the General Information section for more information.

MRF Film

Film collected and sorted at a MRF, typically generated from curbside collections consisting of HDPE grocery/retail bags, LDPE, or LLDPE films.

Product: Film

Contamination: Contaminants not to exceed 10% of loose paper, rigid plastics, non-ethylene film

Prohibited Items: NO food, trash, cans, glass, wood, oil, rocks, liquids, PET plastics, or PVC plastics.

General: Refer to the General Information section for more information.

Grocery Film

Any mix of clean, dry, grocery, retail, packaging film or dry cleaner bags collected from store return programs. Bales may contain HDPE, LLDPE, or LDPE films combined.

Product: Film

Contamination: Contaminants not to exceed 10% of loose paper, rigid plastics, non-ethylene film

Prohibited Items: NO food, trash, cans, glass, wood, oil, rocks, liquids, PET plastics, or PVC plastics.

General: Refer to the General Information section for more information.

Agricultural Greenhouse Film

Films not used on the ground for agriculture or farming. Examples of which may be bale wrap, greenhouse films, dairy bags and bunker silo films which are polyethylene based.

Product: Film

Contamination: Contaminants not to exceed 20% of non-PE film, dirt, rocks, or moisture.

Prohibited Items: NO food, trash, cans, glass, wood, or oil

General: Refer to the General Information section for more information.

Agricultural Ground Cover Film

Any film collected after in field use. Examples of which may be mulch film and irrigation (drip) tubing which is polyethylene based.

Product: Film

Contamination: Contaminants not to exceed 50% of non-PE Film, dirt, rocks, or moisture.

Prohibited Items: NO food, trash, cans, glass, wood or oil.

General: Refer to the General Information section for more information.

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Guidelines for Electronics Scrap: ES-2016

Electronics Scrap

Commercial Guidelines for Electronics Scrap were developed to provide industry-wide quality standards. These standards will facilitate commodity transactions domestically and internationally. Transactions covering shipments to or from other countries may be in accordance with these standards and may be modified by mutual agreement between Buyer and Seller.

Electronic Scrap Definitions

The following E-Recycling definitions will facilitate a more consistent language for both domestic as well as international transactions.

“END-OF-LIFE ELECTRONIC PRODUCTS”

EOL Electronic Products are either obsolete for their intended purpose or no longer useful by the current user and lack any significant market value as an operational unit. These products are represented by any of the following categories of electronic products:

IT and telecommunications electronic equipment including:

- Centralized data processing:
 - Mainframes
 - Minicomputers
 - Printer units
- Personal computing:
 - Personal computers (CPU, mouse, screen and keyboard included)
 - Laptop computers (CPU, mouse, screen and keyboard included)
 - Notebook computers
 - Notepad computers
 - Printers
 - Copying equipment
 - Electrical and electronic typewriters
 - Pocket and desk calculators
 - Other products and equipment for the collection, storage, processing, presentation or communication of information by electronic means
 - User terminals and systems
 - Facsimile
 - Telex
 - Telephones
 - Pay telephones
 - Cordless telephones
 - Cellular telephones
 - Answering systems
 - Other products or equipment for transmitting sound, images or other information by telecommunications

Consumer electronic equipment including:

- Radio sets
- Television sets
- Video cameras
- Video recorders
- Eli-h recorders
- Audio amplifiers
- Musical instruments and other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound and image by telecommunications

Toys, leisure and sports electronic equipment including:

- Electric trains or car racing sets
- Hand-held video game consoles
- Video games
- Computers for biking, diving, running, rowing, etc.
- Sports equipment with electric or electronic components
- Coin slot machines

Medical devices (except all implanted and infected products and radioactive components) including:

- Radiotherapy equipment
- Cardiology
- Dialysis
- Pulmonary ventilators
- Nuclear medicine
- Laboratory equipment or in-vitro diagnostics
- Analyzers
- Freezers
- Fertilization tests
- Other appliances for detecting, preventing, monitoring, treating, or alleviating illness, injury or disability

Monitoring and control instruments including:

- Smoke detectors
- Heating regulators
- Thermostats
- Measuring, weighing or adjusting appliances for household or as laboratory equipment
- Other monitoring and control instruments used in industrial installations (e.g. Irra control panels)

“E-Recycling”

E-Recycling is any process by which End-of-Life (EOL) electronic products which would otherwise become solid waste are collected, separated, reused or processed and returned to use in the form of raw materials or products.

“E-Demanufacturing”

Demanufacturing is the process of separating EOL electronic products (electronic materials) into metallic and non-metallic parts that can be reused or recycled.

“E-Dismantler”

Dismantler is a person who engages in the manual demanufacturing of EOL electronic products (electronic materials) to reuse or recycle components and commodities contained within.

“E-Dismantling”

Dismantling is the manual demanufacturing of EOL electronic products (electronic materials) to reuse or recycle components and commodities contained within.

“E-Processor”

Processor is a person who engages in the mechanical demanufacturing of EOL electronic products (electronic materials) to reuse or recycle various commodities contained within.

“E-Processing”

Processing is the mechanical demanufacturing of EOL electronic products (electronic materials) to recover various commodities contained within.

“E-Broker”

Broker is a person who engages in the buying, selling, and trading of electronic products (electronic materials) without demanufacturing.

“E-Brokering”

Brokering is the buying, selling, and trading of electronic products (electronic materials) without demanufacturing.

ELECTRONICS SCRAP METALS—EM

Preface: The following metals specifications are directed to processing plants generating value-added commodities for consumers producing metal products. All the specifications below are subject to final terms and conditions as agreed between buyer and seller.

EM1—Eddy-Current (EC) Aluminum

Shall consist of the shredded aluminum fraction generated by EC separation of electronic products being predominately aluminum. Bulk density to be a minimum of 30 pounds per cubic foot (subject to terms between buyer and seller). Material may contain agreed-upon amounts of zinc and copper but shall not contain more than a total 5% maximum of nonmetallics, of which no more than 1% shall be rubber and plastics. To be free of excessively oxidized material and any sealed or pressurized items. Any variation to be sold by special arrangement between buyer and seller. Note: Refer to ISRI nonferrous specifications for Tweak or Twitch.

EM2—Eddy-Current (EC) Scrap

Shall consist of a combination of nonferrous metals that should be predominately aluminum but may contain statistically significant percentages of zinc or other nonferrous metals. Bulk density to be a minimum of 30 pounds per cubic foot and subject to terms between buyer and seller. Material to be bought/sold under this guideline shall be identified as EM2 with a number to follow indicating the estimated percentage of nonferrous metal (e.g., EM2-90 means the material contains approximately 90% nonferrous metal content). May also be screened to permit description by specific size ranges. Note: Refer to ISRI nonferrous specification for Zorba.

Note: Specifications for clean aluminum scrap produced by demanufacturing or pretreating EOL scrap prior to shredding can be found under ISRI Guidelines for Nonferrous Scrap. For aluminum streams that contain less than 85% aluminum, consult the general aluminum scrap specifications.

EM3—Circuitboards and Shredded Circuitboards From the Processing of End-of-Life Electronics

Shall consist of whole or shredded copper/precious metal-bearing populated or unpopulated circuitboards from the manual dismantling of electronic products. May also consist of shredded circuitboards from end-of-life electronic product processing systems with a maximum piece size of 2 inches. Maximum acceptable metal contamination: aluminum, 5%; ferrous, 2%; zinc, 2%; magnesium, 1%; and beryllium, 200 ppm. Other elements subject to agreement between buyer and seller. Maximum plastic content: 40%. Typically sold on an assay basis and classified into different categories denominated by the gold levels contained in the material. Major classifications are:

- 1) <50 grams per mt
- 2) <200 g/mt
- 3) >200 g/mt

EM4—Light Iron

Shall consist of whole No. 1 and whole No. 2 wrought iron and/or steel scrap and No.1 busheling from the manual dismantling of electronic products. Refer also to 200, 204, and 207 Guidelines for Ferrous Scrap.

EM5—Iron Frag

Shall consist of shredded No. 1 and No. 2 whole wrought iron and/or steel scrap and No. 1 busheling from end-of-life electronic product processing systems. Refer also to 210 and 211 Guidelines for Ferrous Scrap.

Electronics Scrap Glass and CRT Cullet Specifications

Shipping/Packaging/Labeling—All shipments shall be packaged, labeled, and transported in accordance with all applicable transportation laws and packed in a manner that prevents releases to the environment and protects the health and safety of workers handling the material at generating or receiving facilities.

Whole Monitors/TVs with or with cords. The equipment is intact with housing. Minimal to no disassembly has occurred.

Whole Intact Tubes with gun and vacuum intact or released and with or without the band.

Whole Tubes without gun and with or without the band.

Processed Tubes to include both funnel and panel glass. Particle size will be determined by contract between shipper and smelter or treatment facility. Material should be free of all loose metals, bands, and shadow masks. May or may not be cleaned prior to shipping.

Leaded Funnel Glass and Frit for smelting or other recovery/treatment. This material may include up to 10% panel glass. May or may not be cleaned prior to shipment. Particle

size will be determined by contract between shipper and smelter or treatment facility.

Panel Glass (minimal or lead free) for multiple uses including construction, sand blasting, art glass, etc. May or may not be cleaned prior to shipment. Particle size will be determined by contract between shipper and receiving facility.

Clean Panel Glass with metal oxide concentrations of less than 5 ppm, free of coatings.

Electronics Scrap Plastics–ESP

Loose Plastics–Postconsumer Sources

	ESP-1 Loose Mixed Plastics	ESP-2 Loose TV Plastics	ESP-3 Loose Computer Plastics	ESP-4 Loose Single-Resin Plastics
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source	Residential or commercial	Residential or commercial	Residential or commercial	Residential or commercial
Material origin	All	> 90% by weight from disassembled TV sets	> 90% by weight from disassembled PC monitors, CPUs, printers, & keyboards	> 90% by weight single target resin type
Plastic resin type	All	All	All	ABS, PC, PC/ABS, HIPS, PPE, PVC
Bulk density	Varies	Varies	Varies	Varies
Size	N/a	N/a	N/a	N/a
Shipping	Gaylords/ or larger bulk	Gaylords/ or larger bulk	Gaylords/ or larger bulk	Gaylords/ or larger bulk
Quality				
Color	All	All	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Laminated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Metals	< 10% of mat'ls by weight	< 10% of mat'ls by weight	< 10% of mat'ls by weight	< 10% of mat'ls by weight
Dirt	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Total non-plastics	< 10% cumulative by weight	< 10% cumulative by weight	< 10% cumulative by weight	< 10% cumulative by weight

Loose Plastics—Postindustrial Sources

	ESP-5 Loose Mixed Plastics	ESP-6 Loose TV Plastics	ESP-7 Loose Computer Plastics	ESP-8 Loose Single-Resin Plastics
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source and/or molders	Manufacturers, suppliers and/or molders serving	Manufacturers, suppliers and/or molders serving PC & TV manufacturers	Manufacturers, suppliers and/or molders peripherals manufacturers	Manufacturers, suppliers
Material origin	Rejected parts, excess inventory, or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap
Plastic resin type	All	All	All	Minimum 95% by weight one of the following target resins: ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Varies	Varies	Varies	Varies
Size	N/a	N/a	N/a	N/a
Shipping	Gaylords/ or larger bulk	Gaylords/ or larger bulk	Gaylords/ or larger bulk	Gaylords/ or larger bulk
Quality				
Color	All	All	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight
Laminated	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight
Metals	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Dirt	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Total non-plastics	< 2% cumulative by weight	< 2% cumulative by weight	< 2% cumulative by weight	< 2% cumulative by weight

Baled Plastics—Postconsumer Sources

	ESP-9 Baled Mixed Plastics	ESP-10 Baled TV Plastics	ESP-11 Baled Computer Plastics	ESP-12 Baled Single-Resin Plastics
Material and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source	Residential or commercial	Residential or commercial	Residential or commercial	Residential or commercial
Material origin	All	> 90% by weight from disassembled TV sets	> 90% by weight from disassembled PC monitors, CPUs, printers, & keyboards	> 90% by weight single target resin type
Plastic resin type	All	All	All	ABS, PC, PC/ABS, HIPS, PPE, PVC
Bulk density	Minimum 20 lbs/cu ft	Minimum 20 lbs/cu ft	Minimum 20 lbs/cu ft	Minimum 20 lbs/cu ft
Size	Maximum dimension 72"	Maximum dimension 72"	Maximum dimension 72"	Maximum dimension 72"
Shipping	Strapped	Strapped	Strapped	Strapped
Quality				
Color	Light or mixed	Light or mixed	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Laminated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Metals	< 10% of mat'ls by weight	< 10% of mat'ls by weight	< 10% of mat'ls by weight	< 10% of mat'ls by weight
Dirt	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Total non-plastics	< 10% cumulative by weight	< 10% cumulative by weight	< 10% cumulative by weight	< 10% cumulative by weight

Baled Plastics—Postindustrial Sources

	ESP-13 Baled Mixed Plastics	ESP-14 Baled TV Plastics	ESP-15 Baled Computer Plastics	ESP-16 Baled Single-Resin Plastics
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source and/or molders	Manufacturers, suppliers and/or molders serving TV	Manufacturers, suppliers and/or molders serving PC & manufacturers	Manufacturers, suppliers and/or molders peripherals manufacturers	Manufacturers, suppliers
Material origin	Rejected parts, excess inventory or other plastic scrap	Rejected parts, excess inventory or other plastic scrap	Rejected parts, excess inventory or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap
Plastic resin type	All	All	All	Minimum 95% by weight one of the following target resins: ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Minimum 8 lbs/cu ft	Minimum 8 lbs/cu ft	Minimum 8 lbs/cu ft	Minimum 8 lbs/cu ft
Size	Maximum dimension 72"	Maximum dimension 72"	Maximum dimension 72"	Maximum dimension 72"
Shipping	Strapped	Strapped	Strapped	Strapped
Quality				
Color	Light or mixed	Light or mixed	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight
Laminated	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight
Metals	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Dirt	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Total non-plastics	< 2% cumulative by weight	< 2% cumulative by weight	< 2% cumulative by weight	< 2% cumulative by weight

Shredded Plastics—Postconsumer Sources

	ESP-17 Shredded Mixed Plastics	ESP-18 Shredded TV Plastics	ESP-19 Shredded Computer Plastics	ESP-20 Shredded Sorted Plastics
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source	Residential or commercial	Residential or commercial	Residential or commercial	Residential or commercial
Material origin	All	> 90% by weight from disassembled TV sets	> 90% by weight from disassembled PC monitors, CPUs, printers, & keyboards	> 90% by weight single target resin type
Plastic resin type	All	All	All	Minimum 95% by weight one of the following target resins: ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Minimum 15 lbs/cu ft	Minimum 15 lbs/cu ft	Minimum 15 lbs/cu ft	Minimum 15 lbs/cu ft
Size	4" minus	4" minus	4" minus	4" minus
Shipping	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk
Quality				
Color	Light or mixed	Light or mixed	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Laminated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Metals	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Dirt	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Total Non-plastics	< 10% cumulative by weight	< 10% cumulative by weight	< 10% cumulative by weight	< 10% cumulative by weight

Shredded Plastics—Postindustrial Sources

	ESP-21 Shredded Mixed Plastics	ESP-22 Shredded TV Plastics	ESP-23 Shredded Computer Plastics	ESP-24 Shredded Sorted Plastics
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source	Manufacturers, suppliers and/or moulders	Manufacturers, suppliers and/or moulders serving	Manufacturers, suppliers and/or moulders serving PC TV manufacturers	Manufacturers, suppliers & peripherals manufacturers
Material origin	Rejected parts, excess inventory, or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap	Rejected parts, excess inventory, or other plastic scrap
Plastic resin type	All	All	All	Minimum 95% by weight one of the following target resins: ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Minimum 10 lbs/cu ft	Minimum 10 lbs/cu ft	Minimum 10 lbs/cu ft	Minimum 10 lbs/cu ft
Size	4" minus	4" minus	4" minus	4" minus
Shipping	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk
Quality				
Color	Light or mixed	Light or mixed	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight
Laminated	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight	0% of mat'ls by weight
Metals	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Dirt	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Total non-plastics	< 2% cumulative by weight	< 2% cumulative by weight	< 2% cumulative by weight	< 2% cumulative by weight

Granulated Plastics—Postconsumer Sources

	ESP-25 Granulated Mixed Plastics	ESP-26 Granulated TV Plastic	ESP-27 Granulated Computer Plastic	ESP-28 Granulated Sorted Plastic
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source	Residential or commercial	Residential or commercial	Residential or commercial	Residential or commercial
Material origin	All	> 90 % by wt from disassembled TV sets	> 90 % by wt from disassembled PC monitors, CPUs, printers,& keyboards	> 90% by weight single target resin type
Plastic resin type	All	All	All	ABS, PC, PC/ABS, HIPS, PPE, PVC
Bulk density	Minimum 25 lbs/cu ft	Minimum 25 lbs/cu ft	Minimum 25 lbs/cu ft	Minimum 25 lbs/cu ft
Size	3/8" minus	3/8" minus	3/8" minus	3/8" minus
Shipping	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk
Quality				
Color	Light or mixed	Light or mixed	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Laminated	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight	< 2% of mat'ls by weight
Metals	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight
Dirt	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight
Total non-plastics	< 1% cumulative by weight	< 1% cumulative by weight	< 1% cumulative by weight	< 1% cumulative by weight

Granulated Plastics—Postindustrial Sources

	ESP-29 Granulated Mixed Plastics	ESP-30 Granulated TV Plastic	ESP-31 Granulated Computer Plastic	ESP-32 Granulated Sorted Plastic
Material	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products	Plastic parts from electrical and electronic products
Source	Manufacturers, suppliers and/or molders	Manufacturers, suppliers and/or molders serving TV manufacturers	Manufacturers, suppliers and/or molders serving PC & peripherals manufacturers	Manufacturers, suppliers and/or molders
Material origin	Rejected parts, excess inventory or other plastic scrap	Rejected parts, excess inventory or other plastic scrap	Rejected parts, excess inventory or other plastic scrap	Rejected parts, excess inventory or other plastic scrap
Plastic resin type	All	All	All	Minimum 95% by weight one of the following target resins: ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Minimum 12 lbs/cu ft	Minimum 12 lbs/cu ft	Minimum 12 lbs/cu ft	Minimum 12 lbs/cu ft
Size	3/8" minus	3/8" minus	3/8" minus	3/8" minus
Shipping	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk	Gaylords or bulk
Quality				
Color	Light or mixed	Light or mixed	Light or mixed	Light or mixed
Haz mat	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste	No haz mat or med waste
Moisture	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid	No free-flowing liquid
Flame retardant	Fr or non-fr	Fr or non-fr	Fr or non-fr	Fr or non-fr
Contamination:				
Painted/coated	< 0% of mat'ls by weight	< 0% of mat'ls by weight	< 0% of mat'ls by weight	< 0% of mat'ls by weight
Laminated	< 0% of mat'ls by weight	< 0% of mat'ls by weight	< 0% of mat'ls by weight	< 0% of mat'ls by weight
Metals	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight
Dirt	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight	< 0.5% of mat'ls by weight
Total non-plastics	< 1% cumulative by weight	< 1% cumulative by weight	< 1% cumulative by weight	< 1% cumulative by weight

Cleaned Granulated Plastics with Density Separation—Postconsumer Sources

	ESP-33 Cleaned Granulate w/Density Separation
Material	Plastic parts from electrical and electronic products
Source	Residential or commercial Sources
Material origin	> 99% by weight single target resin type
Plastic resin type	ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Minimum 25 lbs/cu ft
Size	3/8" minus
Shipping	Gaylords or bulk
Quality	
Color	Light or mixed
Haz mat	No haz mat or med waste
Moisture	No free-flowing liquid
Flame retardant	Fr or non-fr
Contamination:	
Painted/coated	0% of mat'ls by weight
Laminated	0% of mat'ls by weight
Metals	< 0.1% of mat'ls by weight
Dirt	< 0.1% of mat'ls by weight
Total non-plastics	< 0.1% cumulative by weight

Cleaned Granulated Plastics with Density Separation—Postindustrial Sources

	ESP-34 Cleaned Granulate w/Density Separation
Material	Plastic parts from electrical and electronic products
Source	Manufacturers, suppliers and/or molders
Material origin	Rejected parts, excess inventory, or other plastic scrap
Plastic resin type	Minimum 99% by weight one of the following target resins: ABS, PC, PC/ABS, HIPS, PPE, or PVC
Bulk density	Minimum 12 lbs/cu ft
Size	3/8" minus
Shipping	Gaylords or bulk
Quality	
Color	Light or mixed
Haz mat	No haz mat or med waste
Moisture	No free-flowing liquid
Flame retardant	Fr or non-fr
Contamination:	
Painted/coated	0% of mat'ls by weight
Laminated	0% of mat'ls by weight
Metals	< 0.1% of mat'ls by weight
Dirt	< 0.1% of mat'ls by weight
Total non-plastics	< 0.1% cumulative by weight

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Guidelines for Tire Scrap: TS-2016

Rubber From Scrap Tires

General Guidelines

Items not covered in the specifications, and any variations in the specification are subject to special arrangement between Buyer and Seller. Percentages listed below are by weight.

Definitions

Fines consist of materials that pass a 4.75 mm sieve. These materials may include rubber, fiber, inorganic and organic matter, dirt, and other non-tire materials.

Sizes will be determined by sieving. Suitable sieve sizes will be selected. Nest the sieves in order of decreasing size of opening from top to bottom and place the sample on the top sieve. Agitate the sieves by hand or by mechanical apparatus for a sufficient period so that additional sieving does not result in substantial additional material passing through the sieves.

TDM refers to tire-derived material.

Rubber Primarily Used for Civil Engineering

TDM 2-A

- ä All material must be smaller than 4";
- ä at least 90% must be smaller than 2½";
- ä at least 50% must be larger than 1½";
- ä at least 90% must be larger than ½";
- ä maximum of ½" protrusion of steel; and
- ä maximum of 1% fines.

TDM 2-B

- ä All material must be smaller than 4";
- ä at least 90% must be smaller than 2½";
- ä at least 50% must be larger than 1½";
- ä at least 90% must be larger than ½";
- ä at least 90% must not exceed 1" protrusion of steel; and
- ä maximum of 5% fines.

TDM 2-C

- ä All material must be smaller than 4";
- ä at least 90% must be smaller than 2½";
- ä at least 50% must be larger than 1½";
- ä at least 90% must be larger than ½"; and
- ä maximum of 5% fines.

TDM 3-A

- ä At least 90% must be smaller than 4";
- ä at least 75% must be larger than 1½";
- ä at least 90% must be larger than ½";
- ä maximum of ¼" protrusion of steel; and
- ä maximum of 1% fines.

TDM 3-B

- ä At least 90% must be smaller than 4";
- ä at least 75% must be larger than 1½";
- ä at least 90% must be larger than ½";
- ä at least 90% must not exceed 1" protrusion of steel; and maximum of 5% fines.

TDM 3-C

- ä At least 90% must be smaller than 4";
- ä at least 75% must be larger than 1½";
- ä at least 90% must be larger than ½"; and
- ä maximum of 5% fines.

TDM 5-A

- ä All material must be smaller than 8";
- ä at least 90% must be smaller than 6";
- ä at least 50% must be larger than 3";
- ä at least 90% must be larger than 1½";
- ä maximum of 1" protrusion of steel; and
- ä maximum of 1% fines.

TDM 5-B

- ä All material must be smaller than 8";
- ä at least 90% must be smaller than 6";
- ä at least 50% must be larger than 3";
- ä at least 90% must be larger than ½";
- ä at least 90% must not exceed 2" protrusion of steel; and maximum of 5% fines.

TDM 5-C

- ä All material must be smaller than 8";
- ä at least 90% must be smaller than 6";
- ä at least 50% must be larger than 3";
- ä at least 90% must be larger than ½"; and
- ä maximum of 5% fines.

TDM 8-A

- ä At least 90% must be smaller than 12";
- ä at least 75% must be smaller than 8";
- ä at least 50% must be larger than 3";
- ä at least 75% must be larger than 1½";
- ä maximum of 2" protrusion of steel; and
- ä maximum of 1% fines.

TDM 8-B

- ä At least 90% must be smaller than 12";
- ä at least 75% must be smaller than 8";
- ä at least 50% must be larger than 3";
- ä at least 75% must be larger than 1½";
- ä at least 90% must not exceed 2" protrusion of steel; and maximum of 5% fines.

TDM 8-C

- ä At least 90% must be smaller than 12";
- ä at least 75% must be smaller than 8";
- ä at least 50% must be larger than 3";
- ä at least 75% must be larger than 1½"; and
- ä maximum of 5% fines.

TDM 12-A

- ä At least 90% must be smaller than 18";
- ä at least 50% must be larger than 6";
- ä at least 75% must be larger than 1½";
- ä maximum of 2" protrusion of steel; and
- ä maximum of 1% fines.

TDM 12-B

- ä At least 90% must be smaller than 18";
- ä at least 50% must be larger than 6";
- ä at least 75% must be larger than 1½";
- ä at least 90% must not exceed 2" protrusion of steel; and maximum of 5% fines.

TDM 12-C

- ä At least 90% must be smaller than 18";
- ä at least 50% must be larger than 6";
- ä at least 75% must be larger than 1½"; and
- ä maximum of 5% fines.

Scrap Specifications Circular 2016

Guidelines for Metals Transactions

These Guidelines are intended as a reference to assist members in carrying out their business obligations in a manner consistent with accepted industry practices. While the Guidelines are not obligatory, it is suggested that potential problems and misunderstandings may often be avoided by following these recommended procedures, in conjunction with ISRI's scrap descriptions.

At times, the respective parties to a transaction may be unaware of the differences in trading practices of the other party. This diversity of interpretation often leads to misunderstandings, disputes, and in some instances expensive lawsuits. It is with the objective of providing members the means of avoiding such friction that ISRI has published these Guidelines, which are based on those practices most common and current in the industry.

On those points where it is impractical to provide recommendations, it is advised that the points be mutually agreed upon by the parties involved.

Part I: Guidelines for Contracts

A contract is an agreement between two or more parties to perform a legally enforceable act.

Therefore, all contracts should be in writing and set forth in **specific** terms. Before signing a contract, one should carefully read and understand all terms of it. No discrepancies or ambiguities should exist at the time the contract is executed. If you receive a contract with terms that are objectionable, you should immediately notify the other party in writing of your objections. An attorney should be consulted when legal advice is needed.

It should be kept in mind that if a dispute arises under a contract, and a court is called in to interpret its terms, certain general rules will be applied. First, contracts will be construed as a "whole," and specific clauses will be subordinated to the contract's general intent. Second, the courts will construe words according to their "ordinary" meaning unless it is clearly shown that they were meant to be used in a technical sense. Also, where provisions appear to be inconsistent, the courts will determine whether some of the provisions are printed (indicating a form contract), as compared to others which are written or typed. The latter kinds of provisions will prevail.

It should be remembered that where you and a Buyer (or Seller) have reached verbal agreement on a transaction, your failure to sign and return a contract which is sent to you in confirmation of that verbal agreement may not relieve you of the obligations of the terms and conditions enumerated in that contract.

These Guidelines were developed to cover routine transactions. It is essential that any unusual arrangements must be completely spelled out in a contract. With these factors in mind, the following list of items is enumerated as a **Checklist** for you to follow, either in the construction of a contract,

or for the review of another party's contract proposal. We cannot overemphasize the need for accuracy and specificity.

Checklist Items

(BE SPECIFIC AT ALL TIMES)

I. Parties to Agreement:

Indicate full name and address of Buyer and Seller. Include name of individual person or persons involved. Buyer's and Seller's signatures are fundamental.

II. Date of Contract:

- (a) Give date the initial agreement was reached
- (b) Give Contract Number.

III. Description of Material:

Use NF code names or clearly describe what is being traded. Any allowable quality variation to be so stated. Ex: "X percent moisture allowed" or "Minimum CU content to be X percent" or "X percent painted material allowed."

IV. Quantity:

State exact quantity expected and indicate allowable tolerances or minimum/maximum limitations. Ex: "40,000 lbs. (5% More/Less allowed)" or "38,000 to 42,000 lbs."

V. Packing:

State type of packing allowable and restrictions if such are required. Ex: "Bales not to exceed 60 inches"; "Bales not to exceed 3,500 lbs."

VI. Delivery:

Show complete address of shipping or delivery point, including where applicable, specific rail siding or junction, forwarding warehouse, and party to be notified. Ex: "FOB (Actual Point of Shipment) Chicago, Ill."; "FOB (Actual Point of Delivery) St. Louis, Mo."; "FAS Baltimore Container Yard"; "C&F Tokyo, Japan." If these details cannot be furnished at the time of writing of contract, it should state "shipping/delivery instructions to follow." State means of conveyance to be employed. State size and type of truck, rail car, container or number of shipments expected or permitted.

VII. Shipment:

Time allowed for shipment or delivery should be clearly stated. Ex: "Shipment by Jan. 15, 2008 LATEST"; or "Delivery by Jan. 15, 2008." Indicate at whose option, Buyer's or Seller's, shipment shall be made in time period stated.

VIII. Price:

State price per unit. Ex: "\$20.00/CWT"; "20.00 Cents/Pound"; "\$400.00/Net Ton"; "\$440.92/Metric Ton." and indicate where appropriate "Clean and Dry"; "Full Copper Content." If applicable, state exact processing, smelting, refining charge, or unit deductions for impurities. (Avoid the use of the word "penalties.")

IX. Payment:

Terms of payment should be explicit. Ex: "Net 30 days after shipment"; "Net 15 days after mill receipt." Avoid phrases such as "usual;" "Net 30;" "Net Cash." Documents required to effect payment to be clearly stated. Ex: "Bill of Lading"; "Invoice"; "Weight Certificate." State how payment shall be made. If there is discussion of compensation for delayed payments, it should be included in the contract. If Letter of Credit is called for as a means of payment, it is advisable that the terms to be included in the Letter of Credit also be stated in the contract. When applicable, contract should state whether Buyer or Seller is responsible for payment of taxes, duties, or any other levies to which a shipment could be subjected. Contract should state whether the Seller's or Buyer's weights shall govern the basis of settlement.

X. Assignment:

The contract may state whether the Buyer and/or the Seller has the right to assign the contract. If it does, it should emphasize that the obligation arising under the contract shall be equally binding on his assignee.

XI. Notice:

The Seller should specify how notice to be given under the contract should be received—i.e. by hand, by telegram, by certified or registered mail. One should also specify when notice is deemed to be received by the party to whom it is given.

XII. Disclaimer of Warranties:

Depending on the type of transaction, or the metal involved, the Seller may want to limit his liability by disclaiming any warranties of merchantability or of fitness for a particular purpose.

XIII. Default:

The contract should contain a provision setting forth the events which would result in a default of the contract. This provision might also contain a clause stipulating damages and/or setting forth available remedies (i.e. specific performance) in the event a default does, in fact, occur.

XIV. Force Majeure:

This item is related to the item of default, as indicated in paragraph XIII. Seller or Buyer may enumerate, either generally or specifically, what events (i.e. strikes, fires, accidents) constitute circumstances beyond its control and thereby absolve him/her of any liability for damages or delay.

XV. Non-Waiver:

The Seller or Buyer should state in the contract that his/her failure to insist upon strict performance in any given instance shall not be construed as a waiver or relinquishment for the future of any of the terms, covenants and conditions contained therein.

XVI. Claims:

The Seller may specify that any claims involved in a metals transaction for contaminated materials, weight shortage, or for any other cause is waived by the Buyer unless brought to the Seller's attention within a certain number of days after delivery.

XVII. Arbitration and Applicable Law:

The contract should set forth which state's or country's law will apply in the event of a legal dispute under the contract. It should also provide for arbitration procedure. (If ISRI Arbitration is desired, the contract should so stipulate.)

XVIII. Benefit:

The contract should stipulate on whom it is binding. For instance, the Seller or Buyer may want to specify that the contract inures to the benefit of the parties, their legal representatives, successors and assignees.

XIX. Entire Agreement:

This provision is especially important in the area of metals transactions, which frequently involve extensive preliminary negotiations. A clause may be inserted into the contract stating that the contract constitutes the parties' entire agreement and supersedes all prior agreements and understandings with respect to the subject matter of the contract.

XX. Modification:

A clause may be included in the contract stating that the contract's requirements can only be modified by a written instrument signed by the parties or their respective agents. This insures that the parties' informal discussions will not later be construed as affecting an alteration of the contract.

Part II: Packing, Weighing, Shipping and Receiving

It is recommended that strict adherence to contract terms will minimize many of the potential problems in this area. If there is a question about any item, one should communicate with his/her Buyer/Seller and clarify the situation prior to shipping. Listed below are some specific guidelines to be used in avoiding the most frequently reported problems.

Packing (All Shipments)**Seller's Responsibility:**

- a. Pack in the manner and form agreed. Example: In sound bales, briquettes, boxes, pallets, drums, loose, etc.
- b. Be sure that Buyer agrees with your definition of words and phrases, i.e. Bale, Briquette, Coil, etc. as well as allowed dimensions and weights of such.
- c. Material and packages should be securely tied or supported so that packages will hold in transit and normal handling.

Buyer's Responsibility:

- a. Advise Seller of any specific prohibitions, i.e. type or method of packing, size or weight of pieces, units or packages, etc.
- b. Be sure that Seller agrees with your definition of words and phrases, i.e. Bale, Briquette, Coil, etc., as well as allowed dimensions and weights of such.

Weighing, Shipping and Receiving (Truck Shipment)**Seller's Responsibility:**

- a. Each package should be individually weighed and the entire truckload should be checkweighed for comparison. Reconcile or explain any differences. If truck is

weighed during inclement weather or wind, make note of this on weight ticket.

- b. Trailers should be drop-weighed (both empty and loaded).
- c. All equipment should be inspected before loading, and cleaned or repaired where necessary to avoid loss or spillage.
- d. Open top trucks or trailers should be tarped or covered.
- e. Vans and closed trailers should be sealed and seal numbers indicated on all documents.
- f. If your customer requires appointments, make one in advance. Otherwise, as a courtesy, advise the Buyer of your anticipated delivery schedules.
- g. A complete manifest and packing list should accompany each shipment. This should clearly indicate the order number, items shipped, number and type of packages of each commodity, as well as the gross, tare and net weights of each package. This detailed information should be put into an envelope and attached to the inside wall of the truck or van. If this cannot be done, give a complete set of papers to the driver to deliver with the original Bill of Lading covering the shipment. At the very least, notify Buyer by telephone, telex or wire of these details on the day shipment leaves.
- h. Different lots should always be properly segregated and bulkheaded to avoid comingling. Each package should be tagged or marked to aid in proper identification and segregation at the receiving point.
- i. Be aware that someone at the delivery point will have to unload the shipment. Pay particular attention to door areas to assure that material is loaded safely. Proper care should be taken to insure that the material can be unloaded in a safe and expedient manner.

Buyer's Responsibility:

- a. If Seller requires appointment prior to pickup, make one in advance. Otherwise, as a courtesy, advise the Seller of your anticipated pickup schedule.
- b. Trailers should be drop-weighed (both empty and loaded).
- c. Carefully check shipment advices and compare package count, seal numbers, weights.
- d. **Prior to unloading**, if a significant* weight difference is apparent, the Seller should be notified promptly and, if requested, another weight should be taken to determine if spillage or theft might have occurred.
- e. **After unloading**, promptly advise Seller of any significant* differences between advised and actual weights, segregation, classification or quality. (Note: Refer to Part IV of the circular for recommended procedures in handling quality problems.)
- f. Truck or trailer should be completely unloaded including any spilled material which should be picked up, weighed and identified as spilled from original containers. Buyers should cooperate in every way to help minimize losses.

Weighing, Shipping and Receiving (Rail Shipment)

Seller's Responsibility:

- a. Each package should be individually weighed and the entire rail car should be checkweighed for comparison. Reconcile or explain any differences. If rail car is weighed during inclement weather or wind, make note of this on weight ticket.
- b. Railroad cars should be uncoupled and at rest (if possible) before weighing.
- c. All equipment should be inspected before loading, and cleaned or repaired where necessary to avoid loss or spillage.
- d. Railroad cars should be sealed and seal numbers indicated on all documents.
- e. A complete manifest and packing list should accompany each shipment. This should clearly indicate the order number, items shipped, number and type of packages of each commodity, as well as the gross, tare and net weights of each package. This detailed information should be put into an envelope and attached to the inside wall of the railroad car. If this cannot be done, mail a complete set of papers to the Buyer on the day shipment leaves.
- f. Different lots should always be properly segregated and bulkheaded to avoid comingling. Each package should be tagged or marked to aid in proper identification and segregation at the receiving point.
- g. Be aware that someone at the delivery point will have to unload the shipment. Pay particular attention to door areas to assure that material can be unloaded in a safe and expedient manner.

Buyer's Responsibility:

- a. Railroad cars should be uncoupled and at rest (if possible) before weighing.
- b. Carefully check shipment advices and compare package count, seal numbers, weights.
- c. **Prior to unloading**, if a significant* weight difference is apparent, the Seller should be notified promptly and, if requested, another weight should be taken to determine if spillage or theft might have occurred.
- d. **After unloading**, promptly advise Seller of any significant* differences between advised and actual weights, segregation, classification or quality. (Note: Refer to Part IV of the circular for recommended procedures in handling quality problems.)
- e. Rail car should be completely unloaded including any spilled material which should be picked up, weighed and identified as spilled from original containers. Buyer should cooperate in every way to help minimize losses.

Weighing, Shipping and Receiving (Export/Import Shipment)

Seller's Responsibility:

- a. Each package should be individually weighed and the entire container load should be check-weighed for comparison. If container is weighed during inclement weather or wind, make note of this on weight ticket.

- b. Container and chassis should be drop-weighed, if possible, both empty and loaded.
- c. Prepare and send to Buyer a complete manifest and packing list indicating the order number, items shipped, number and type of packages of each commodity, as well as the gross, tare and net weights of each package and the seal numbers.
- d. If shipment is against a Letter of Credit, pay strict attention to all terms.
- e. Place seals on all container doors and indicate seal numbers on documentation.
- f. Material and packages should be properly stowed and braced to prevent movement during shipment.
- g. Be aware that someone at the delivery point will have to unload the shipment. Pay particular attention to door areas to assure that material is loaded safely. Proper care should be taken to insure that the material can be unloaded in a safe and expedient manner.

Buyer's Responsibility:

- a. Container and chassis should be drop-weighed, if possible, both empty and loaded.
- b. Carefully check shipment advices and compare package count, seal numbers, weights.
- c. **Prior to unloading**, if a significant* weight difference is apparent, the Seller should be notified promptly and, if requested, another weight should be taken to determine if spillage or theft might have occurred. Seller should be given opportunity to appoint surveyor or representative to verify weights.
- d. **After unloading**, promptly advise Seller of any significant* differences between advised and actual weights, segregation, classification or quality. (Note: Refer to Part IV of the circular for recommended procedures in handling quality problems.)
- e. Container should be completely unloaded including any spilled material which should be picked up, weighed and identified as spilled from original containers. Buyer should cooperate in every way to help minimize losses.

*For purposes of this section, the meaning of the word "significant" shall be determined by agreement between Buyer and Seller, depending on the commodities and their values.

Part III: Transportation Guide

The mode and type of conveyance should be specified in the contract. If it has not been, then it is important that Buyer and Seller agree upon the mode and type to be used. These guidelines will assist in determining the appropriate means of transportation to employ.

A. Mode—Truck/Trailer

1. Type:
 - a. Dump
 - b. Removable sides
 - c. Van—open or closed
 - d. Dimensions of unit (20 ft., 40 ft., etc.)

- e. Determine if truck/trailer capacity meets minimum weight specified on contract.

B. Mode—Rail Car

1. Type:
 - a. Box car or gondola
 - b. Size of door opening, i.e. single or double door
 - c. Special type D.F., Hi-Cube, etc.
 - d. Dimensions of car (40 ft., 50 ft., 60 ft., etc.)
 - e. Determine if rail car capacity meets minimum weight specified on contract.

C. Export Shipments

1. Container:
 - a. Type of container, i.e. closed, open-top, flat rack, Hi-cube, etc.
 - b. Size of container (20 ft., 35 ft., 40 ft., 45 ft., etc.)
 - c. Determine if container capacity meets minimum weight specified on contract.
2. Breakbulk

Part IV: Rejections—Downgrades—Claims

A brief explanation of these items will help one understand and implement the procedures recommended in this section.

Rejections: Rejections can occur when a Buyer refuses to accept a shipment of material that does not conform to the description specified in the contract. Usually in such cases, the Buyer cannot utilize the material and the Seller is asked to remove the material from the Buyer's place of delivery. A rejection can occur prior to unloading, but often the cause of the problem cannot be determined until the material has been off loaded and graded. Any part, or all, of the shipment may be subject to rejection.

Downgrades: Downgrades can occur when all, or part, of the material in a shipment is not in conformity with the description specified in the contract. Often, in such cases, the Buyer can utilize the material and is willing to accept delivery of the material, subject to a price commensurate with its value.

Claims: This term is used mostly in export-import movements, and is used generically to encompass both **rejections** and **downgrades**, as well as **weight shortages**.

Strict adherence to contract terms can minimize the common causes of these difficulties. However, if a problem arises, it should be given prompt attention and settlement should be attempted as quickly as is practical. It is essential that both parties cooperate and keep communications open to minimize expenses and to preserve the relationship. Negotiations should not be conflicting but mutually beneficial and fair. Listed below are some recommended steps to be taken when a problem arises.

Domestic Shipments

Buyer's Responsibilities:

- a. In the event of a rejection Buyer must notify Seller immediately by telephone or telex. If Seller fails to

respond within two business days, Buyer may return material in most prudent manner. Subject to contract provisions, Buyer should promptly advise Seller concerning replacement of rejected material.

- b. In the event of a downgrade Buyer must notify Seller immediately by telephone or telex and afford Seller an opportunity to inspect the material prior to its use. If material is to be inspected by Seller or his/her representative, Buyer should agree to a mutually convenient time to do so.
- c. Buyer must give Seller option of removing material if he/she does not agree to downgrade. (All costs of unloading and reloading are for Seller's account.)

Seller's Responsibilities:

- a. In the event of a rejection Seller should respond promptly and advise Buyer of his/her intentions. Seller must reply within two business days. Subject to contract provisions, he/she must advise Buyer promptly concerning replacement of rejected material.
- b. In the event of an unacceptable downgrade Seller must advise Buyer within two business days if he/she wishes to inspect material and agree upon a mutually convenient time to do so.

- c. If Seller wishes to remove downgraded material from Buyer's delivery point, he/she must advise Buyer promptly. (All costs of unloading and reloading are for Seller's account.)

Export-Import Shipments

Buyer's Responsibility:

- a. In the event of a claim, time is of the essence and notification should be given to Seller within a reasonable period of time after arrival of vessel in receiving port.
- b. In the event of a claim, the material should be held intact until agreement has been reached. The acceptable portion of the material may be consumed and/or arrangements may be made to sample a portion of material, i.e., 10-25% with balance held intact pending resolution of claim.

Seller's Responsibility:

- a. In the event of a claim, Seller should respond to Buyer's notification promptly by telephone, telex, wire, or cable.
- b. When a claim settlement has been agreed upon, terms of settlement must be followed promptly.

ISRI Arbitration Service

ISRI established an arbitration service as a means to enable members to use arbitration to resolve disputes.

ISRI arbitration is a voluntary procedure and must be agreed upon by both parties in the dispute. It is not required that both parties to the dispute be ISRI members.

The complete procedure for arbitration is set forth in ISRI's "Rules for Arbitration," which are available from Association headquarters in Washington, D.C. The rules contain the necessary form that must be completed to initiate arbitration. ISRI treats all filings, awards, and proceedings as confidential.

The rules are highlighted below:

1. Anyone may propose arbitration in a dispute, though at least one party must be a member of the association. Both parties must agree to the arbitration by signing a "Submission to Arbitrate" form and agreeing to abide by the applicable Arbitration Rules.
2. A panel of arbitrators has been established by the association. The arbitrators serve without compensation, except for reasonable expenses. The arbitration parties must draw their arbitrators from the panel. A maximum of three arbitrators can be issued in any proceeding; the parties are encouraged to use a single arbitrator.
3. There is a specific schedule of fees listed in the "Rules for Arbitration." Each party must deposit with the association in advance \$500 plus \$500 for each arbitrator. The total deposit for each party thus is either \$1,000 or \$2,000, depending on whether one arbitrator is to be used or three. A portion of the fee is refundable if not required to defray arbitrators' costs. The arbitrators

may require the losing party to reimburse the prevailing party for its share of these costs.

4. The arbitration procedure usually includes a hearing, at which time the parties involved are required to appear, present their respective cases, and be available for questioning by the arbitrator(s). All physical evidence (contracts, correspondence, relevant comments, etc.) may be required to be submitted in advance to the arbitrators. A party in the arbitration may be accompanied by counsel but must inform the other party in advance and receive permission from the arbitrators. Witnesses may also be called to an arbitration hearing. There is also an optional procedure for conducting the arbitration without an oral hearing.
5. An award by the arbitrator(s) will be made promptly, within 20 days after hearings have been completed or final briefs submitted. The award is made in writing.
6. The rules state that the parties to the dispute shall be deemed to have consented that a judgment upon the award be entered in any court having jurisdiction over an action to enforce the award.

Members who wish to provide an automatic basis for the settlement of any disputes arising from a transaction are encouraged to provide in their contracts that the ISRI Arbitration Procedure shall prevail in the event of any ensuing controversy and that each party will take all necessary steps to initiate such arbitration. Members are urged to obtain and carefully read the "Rules for Arbitration" before proceeding.

For more information, contact Eric Harris, 202/662-8514 or ericharris@isri.org.