

Scrap Quality Specification

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1.0 PURPOSE:

Novelis is a supplier to discerning customers of a wide variety of rolled aluminum products. Novelis' visibility in these markets depends on its' ability to consistently supply aluminum of the highest quality. A major impact on our ability to meet this requirement is the raw material we return from our external tollers and purchase for our processes. Scrap is a key material in our production of all products.

It is for this reason that we have developed this manual, the major purpose being to communicate as clearly as possible, the Novelis requirements for high quality scrap for process. The philosophy of Novelis is to work with all of its suppliers to enable them to continuously improve the quality of materials delivered.

2.0 GENERAL SAFETY GUIDELINES

- 2.1 Water poses a MAJOR EXPLOSION RISK when combined with molten metal. All forms of scrap that have potentially been introduced to water, or the following: containers, or bottles, crimped tubing and other closed containers, water filled bales, fiber/cardboard cored coils, desiccant, paper interleaved coils and wrapped coils/bales are all common hiding places for water in some form or another; incoming loads containing any of these items are subject to rejection.
- 2.2 Other causes of explosion may occur, so all scrap must be clean and free of fertilizers, explosives, aluminum fines, nitrates, sulfates, oxidizers, butane lighters, welding equipment, propane tanks, unknown powders, salts, dross, excessive mold release agents, pot room bath, corrosion, dirt, gravel, volatile substances, non-aluminum contaminants, closed containers, crimped tubing, PCB's, radioactive materials and aluminum-lithium alloys, and other flammable materials. Any loads containing these or other questionable substances are subject to rejection.
- 2.3 Unloading dock safety is also critical. Many of the same requirements to ensure a quick unloading are the same for safety. In addition to the previous requirements, shifted loads, any material that has stored mechanical energy (springs or compressed gasses) or has sharp edges protruding from the bundle are all examples of unacceptable material. Any scrap/prime that is loaded in an unsafe manner will be rejected.
- 2.4 **Containing Scrap Safely**
 - a) All pieces of scrap should be individually self-contained. Loose sheet, unbound coils and broken bales are examples of unacceptable loads.
 - b) All material should be loaded and secured to ensure orderly shipment. Tipped-over sows and broken or double-stacked cardboard boxes or skids are examples of unacceptable loads that will be rejected.

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- c) The load must also be of a form to ensure that unloading does not take more than the amount of time allotted for the unloading appointment. Sows with no accessible fork pockets as well as a load with many small, unmanageable pieces/coils are examples of loads subject to rejection.
 - d) Bales may be stacked as long as the weight of each stack of bales is (see 4.2 for weights of single bales):
 - Less than 11,500 pounds for Oswego
 - Less than 8,000 pounds for Berea and Greensboro
 - The stack must have enough clearance to unload without damaging the truck.
 - e) Plastic or fiber banding is to be used on all scrap returned from external tolling facilities.
- 2.5 Coatings can cause excessive flaring and damage pollution controls. Hence, oils and process lubes are limited to 1% by weight of the scrap. Painted, lacquered or coated scrap is also not acceptable.
- 2.6 Labeling of the proper chemical analysis is critical to the final properties of our end product. Thus, any individual piece or bundle of scrap must be composed of a single alloy or a known and acknowledged alloy grouping. The alloy or grouping must be clearly and permanently identified on the scrap along with the gross, tare, and net weight. Any grouping must be reviewed on a regular basis as defined by the agreement and procedure. Label types include spray paint, ink, stickers, markers, packing slips, wired tags, or heat resistant crayon. Each ingot, bundle, sow or coil must be marked legibly and permanently with manufacturers heat number and the 4 digit AA alloy code or Novelis equivalent.

3.0 CONTAMINANTS

- 3.1 The presence of the following items may cause reason for rejection:
- a) Paper
 - b) Plastic
 - c) Iron/Steel
 - d) Batteries
 - e) Rocks/Dirt/Sand/Glass/Dross
 - f) Rubber
 - g) Foil/Pie Pans/Wood
 - h) Oxides (i.e. rust and corrosion)
 - i) Excessive Oils
 - j) Unknown powders or residues
 - k) Insulated Beverage Containers/Aerosols
 - l) Excessive Moisture
 - m) Cadmium Sulfide (Photocopier Drums)
 - n) Rusted Banding

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4.0 FORM REQUIREMENTS

4.1 Briquette

- a) Dimensional Range = 4" x 4" x 6" to 24" x 24" x 48"
- b) Density must be greater than 40 lbs. / cu. Ft.
- c) Material is to be palletized and strapped with steel or fiber banding (no other type of containment is allowed).
- d) The maximum size steel bands are .75"X .020" thick.
- e) Iron sensitive alloys (such as 6111) require fiber banding.



Scrap Type	Briquette
Label Location	Scrap Surface
Paint	X
Sticker	X
Marker	
Packing Slip	X
Wired Tag	X
Crayon	

4.2 Bale

- a) Dimensional Range = 24" x 24" x 48" to 48" x 48" x 60".
- b) Density must be greater than 20 lbs. / cu. ft.
- c) Material is to be bound with fiber or steel banding (Iron sensitive alloys such as 6111 require fiber banding).
- d) Bales should not arrive on skids.
- e) Cardboard, sheet, plastic, or burlap wrapped bales, which do not allow for visual inspection of the contents, will not be accepted.
- f) Bale stacks should allow a minimum of 6 inches clearance to the roof of the trailer, and individual bales should weigh a max of 6,000 lbs.
- g) Dump truck delivery must be specifically agreed to in the purchase order and special arrangements must be made for delivery.



Scrap Type	Bale
Label Location	Scrap Surface
Paint	X
Sticker	X
Marker	
Packing Slip	X
Wired Tag	X
Crayon	

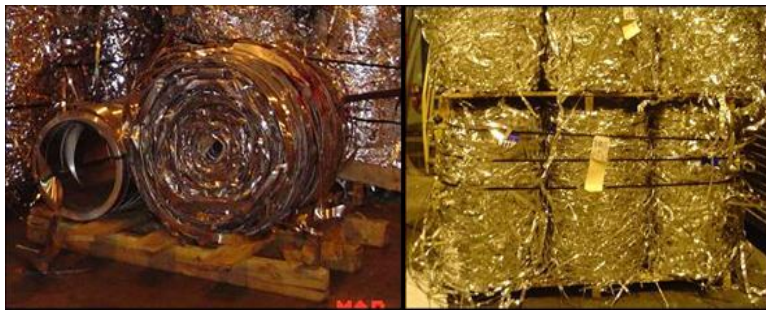
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4.3 Boxed

- a) Minimum weight per box is 1,200 pounds.
- b) Maximum weight per box is 7,000 lbs. for Oswego, 6,000 lbs. for Berea, & 5,000 lbs. for Greensboro.
- c) Boxes should be strong enough not to tear during the unloading process. Any boxes that are wet or oil soaked will be rejected.
- d) All boxes must be securely banded to pallets.
- e) Boxes may not be double stacked. Double stacked boxes will be rejected.
- f) Boxes cannot be loaded "telescoped," or stacked inside other boxes.
- g) Chips / Clipped Sheet can be delivered in cardboard boxes or in a dump truck.

4.4 Heavy Gauge Spools/Edge Trim

- a) Heavy Gauge Spools can be spooled to sizes between 200 & 11,500 pounds when delivered to Oswego and up to 6,000 when delivered to Berea or Greensboro.
- b) Heavy Gauge Spools under 2,000 pounds and of the same alloy should be banded together.
- c) Spools smaller than 1,000 pounds and of the same alloy should be palletized, unless otherwise approved by the plant.
- d) Spools cannot be larger than 6' in diameter.
- e) Spools cannot be banded to coils.



Scrap Type	Coiled Edge Trim
Label Location	Scrap Surface
Paint	X
Sticker	X
Marker	
Packing Slip	X, if Palletized
Wired Tag	
Crayon	

4.5 Coils

- a) Dimensions: Width = 18" to 100", ID Min = 6" and OD Max = 110."
- b) Max Weight = 55,000 pounds when delivered to Oswego and 6,000 when delivered to Berea and Greensboro.
- c) No steel or fiber cored scrap will be accepted.
- d) Coils over 40,000 pounds require special notice and a different appointment time (See Delivery Section).
- e) Unstable coils (collapsed ID) have a reduced max weight of 11,500 pounds and can only be accepted in Oswego.

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- f) Spliced coils are to be comprised of only 1 alloy, unless a mixing plan has been developed and agreed upon in advance.
- g) For coils shipping internationally, reference 4.11.



Scrap Type	Coil
Label Location	Consistent Face
Paint	X
Sticker	X
Marker	X
Packing Slip	X
Wired Tag	
Crayon	X

4.6 Cut Coils

- a) Cut coils may be banded to pallets if necessary for transporting.
- b) Max weight (with or without a pallet) = 11,500 pounds when delivered to Oswego and 6,000 when delivered to Berea or Greensboro.
- c) Unstable cut coils are to be baled or put in cardboard boxes on pallets.
- d) Spliced Cut Coils are to be comprised of only 1 alloy, unless a mixing plan has been developed and agreed upon in advance.
- e) Bundled coils are to be comprised of the same alloy unless a mixing plan has been developed and agreed upon in advance.
- f) No steel or fiber cored cut coils will be accepted.

Scrap Type	Bundled Cut Coil	Scrap Type	Bundled Cut Coil	Scrap Type	Palletized Coil Cuts	Scrap Type	Bundled Cut Coil
Label Location	Inner Wrap	Label Location	Outer Wrap	Label Location	Scrap Surface	Label Location	Consistent Face
Paint	X	Paint	X	Paint	X	Paint	X
Sticker	X	Sticker	X	Sticker	X	Sticker	X
Marker	X	Marker	X	Marker	X	Marker	X
Packing Slip	X	Packing Slip		Packing Slip	X	Packing Slip	X
Wired Tag		Wired Tag		Wired Tag		Wired Tag	
Crayon	X	Crayon	X	Crayon	X	Crayon	X

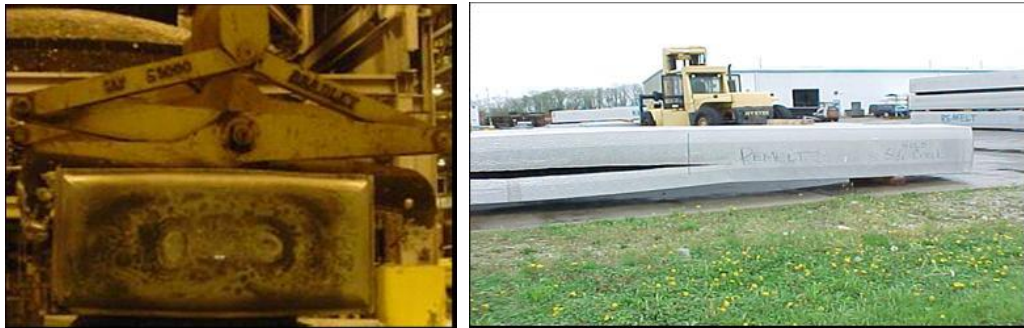
4.7 Ingot

- a) Dimensions:
Width Min = 40" : Max = 94"
Length Min = 120": Max = 305"
Thickness Min = 18": No Max
- b) Weight Max = 60,000 pounds with delivery to Oswego only.
- c) Ingots with excessively concave short sides will not be accepted because they are unsafe for our grabs.
- d) Ingots longer than 200" or heavier than 40,000 pounds require special notice and a different appointment time (See Delivery Section).
- e) Ingot must be marked "Remelt" or "Scrap," along with the alloy, clearly on the short sides.

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- f) No cracks that make handling the ingot by forklift or 4-point-crane-grabs unsafe, will be allowed.

Ingot Grabs



4.8 Self-Supporting Plate / Sheet (Less than 2" deflection if lifted in the middle)

- a) Width = 40" to 90" (64" max if greater than 8,000 Pounds).
- b) Length = 40" to 108"
- c) Max weight including pallet is 11,500 pounds for Oswego and 6,000 for Berea and Greensboro.
- d) The maximum plate thickness for Berea and Greensboro is .5".
- e) All pieces larger than 75" x 75" require special notice and a different appointment time (See Delivery Section).

4.9 Not Self-Supporting Plate / Sheet

- a) Same dimensions and weight as Self-Supporting (see section 4.8 above).
- b) This material is to be banded to other pieces of the same size, in 2 directions, such that no sheet can freely slide apart and be dangerous. **Sheet scrap is dangerous because its flexible nature can allow it to slide off the forks of the fork truck and cause damage or injury.**
- c) Sheet scrap of the same alloy should be bundled together to a minimum of 1,000 pounds. Maximum weight including pallet is 11,500 pounds for Oswego and 6,000 for Berea and Greensboro.
- d) Once banded together, the material is also to be banded to a pallet so that the pallet can be removed without unfastening the banded material.



Scrap Type	Plate / Sheet
Label Location	Scrap Surface
Paint	X
Sticker	X
Marker	X
Packing Slip	X
Wired Tag	
Crayon	X

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4.10 Shreds

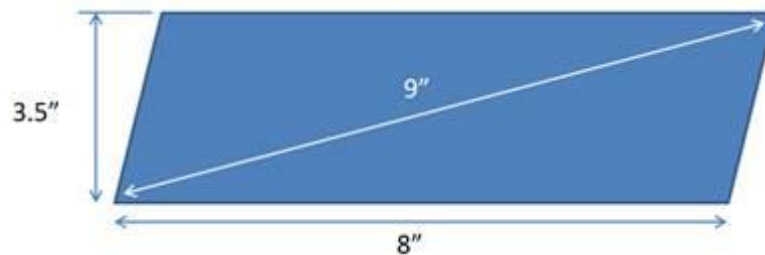
- a) Packaging of shreds must be plant approved.
- b) Shred size must be plant approved because different plants have different processes.
- c) The size of shred pieces should be no larger than 3x3, unless otherwise approved by the plant.
- d) All 3X shred must be produced from shredded aluminum rather than cast aluminum.
- e) All 3X shred must be magnetically separated prior to shipment to Novelis.



4.11 Chopped Scrap

- a) Packaging of plant scrap must be plant approved
- b) Chopped scrap piece size must be plant approved, because different plants have different processes.
- c) Piece size (unless otherwise approved by the plant):

Maximum is 3.5" wide 8" long X 4mm guage



Minimum surface area is 1 square inch X 0.25mm guage

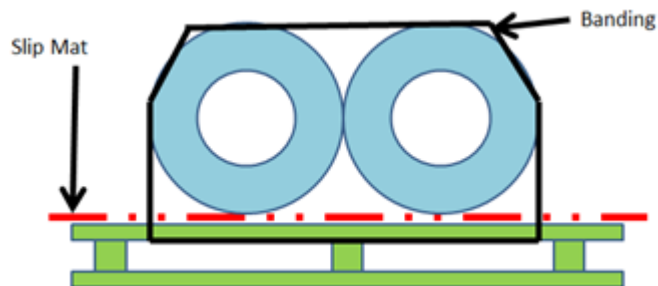
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4.12 International Coil Form

These forms are for coils shipping rear-loaded, in a trailer with anchor points.

a) Eye Horizontal

- 4.12.a.1 Dimensions: Width 18" to 100", ID Min = 6".
- 4.12.a.2 Coils should be banded together, in pairs, to a bundle weight of no greater than 11,500 lbs. when delivered to Oswego and 6,000 lbs., when delivered to Berea or Greensboro.
- 4.12.a.3 Coils that cannot be bundled into pairs, due to weight, are to be shipped per requirement 4.5.
- 4.12.a.4 Coils must be placed on slip mats, on pallets (see diagram, below).



b) Eye Vertical

- 4.12.b.1 Coils should be banded together, to a bundle weight of no greater than 11,500 lbs. when delivered to Oswego and 6,000 lbs. when delivered to Berea or Greensboro.
- 4.12.b.2 Coil(s) must be fastened to a pallet so it cannot move on the pallet.

5.0 SCRAP DELIVERY & UNLOADING POLICY

5.1 Rear loaded trailers:

- a) Rear loaded trailers are only allowed on trailers with firm, rigid sides (i.e. van trailers and flat bottom dump trailers).
- b) Coils, or bundles of coils, must be less than 5,000 lbs. unless the trailer has anchor points.

5.2 Side loaded trailers:

- a) Due to the fact that most side loads are unloaded outside, any truck that is side loaded may be rejected or forced to wait at the shipper's expense due to

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- any weather conditions that pose a danger to unloading personnel or equipment.
- b) Any load with a single piece greater than 11,500 pounds **must** be side loaded for Oswego only; for Berea and Greensboro 6,000 pounds.
 - c) Flatbed trailers must be side loaded.

6.0 SECURED LOADS

- 6.1 All loads must be packaged and secured to meet the requirements specified by the Department of Transportation, in the United States, and by the Ministry of Transportation, in Canada.
- 6.2 All material must be secured to prevent shifting during transit. If the load shifts and is unsafe or would require twice (or more) the amount of time than is allotted to that load for unloading, the load will be rejected. Consistent demonstration of poor loading practices will result in disqualification. Please consult the Buyer if there are any questions about allotted unloading time.

7.0 DELIVERY SCHEDULE

- 7.1 In the interest of both parties, as well as the shipping companies involved, efficient and safe delivery of material is critical for keeping shipping costs down. As a result, ALL MATERIAL must have a delivery appointment. Novelis is not responsible for any costs that may be incurred because a load arrives **before** a scheduled delivery appointment. Unloading hours are 24 hours/day, 7 days a week except for holidays. Please work with your Recycling Coordinator for questions on the delivery calendar at a specific plant.

8.0 SCRAP RADIATION POLICY & IDENTIFICATION

- 8.1 Supplier warrants that none of the material purchased or delivered is, or contains radioactive materials.
- 8.2 Supplier agrees to defend, indemnify and hold harmless Novelis and its subsidiaries and affiliates, and its directors, officers, employees, agents and representatives ("Novelis Indemnitees") from any and all claims, demands, damages, liabilities, costs, expenses and fees (including reasonable attorney's fees), arising out of, resulting from, or relating to, in whole or in part, a breach of the foregoing warranty.
- 8.3 The supplier understands that its material will be tested before and after acceptance by Novelis, and, as such, Novelis shall have the right to revoke the acceptance of the materials at any time. If radioactive material is discovered, Novelis may, at its option and without prior notice or approval from the supplier, undertake to handle, dispose of and/or clean up the radioactive material. All

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costs, fees and expenses associated with the handling, disposal and cleanup, and the return of the shipment whether or not undertaken exclusively by Novelis, shall become the responsibility of the supplier, and the supplier shall release, defend, indemnify and hold harmless Novelis Indemnitees from any and all claims, demands, damages, liabilities, costs, expenses, fees and penalties arising out of, resulting from, or relating to, in whole or in part, said handling, disposal, and cleanup. Supplier further agrees to waive any claims, rights and defenses which it might otherwise have against Novelis Indemnitees arising out of, resulting from or relating to the handling, disposal of, and/or clean up of the radioactive material by Novelis or its designees.

- 8.4 Each purchase order is contingent upon the supplier's acceptance of these terms. Supplier acknowledges that delivery of any material to Novelis shall be deemed acceptance of these terms, and agrees that any terms and conditions contained in a proposal, quotation, acknowledgement, acceptance, invoice or other document of supplier which are different from or in addition to these terms and conditions shall not constitute a part of the purchase order and are hereby expressly rejected, and that no employee of Novelis is authorized to or may waive or modify these terms.

9.0 SCRAP REJECTION POLICY

- 9.1 Coordinator or Crew Leader determines if any part of the load is unacceptable for any of the preceding reasons involving safety, quality of material, signed purchase order or delivery.
- 9.2 The Buyer will then notify supplier as to why a load has been rejected. The supplier is responsible for all freight and reloading costs to ship the rejected load from Novelis. If available, photos will be sent to supplier for review.
- 9.3 Rejected material must be promptly removed. If the rejected material is not removed within 5 business days, the rejected material will be sent collect to the vendor or location of the vendor's choice. This purchase order shall remain open subject to the original terms and conditions.

10.0 INSPECTION & SAMPLING

- 10.1 Each load of purchased scrap will be examined upon receipt for compliance with the description of the material on the purchase order. The material will also be sampled for chemical composition. The method and frequency of inspection and sampling will be at Novelis' discretion. Failure of physical inspection or chemical analysis may result in the load being rejected or downgraded.
- 10.2 If a scrap charge causes an off analysis furnace, the vendor who supplied the material will be responsible for all charges related to the incident.

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11.0 INSURANCE

- 11.1 Each vendor selling scrap to Novelis will have and maintain adequate minimum insurance coverage including but not limited to, general and products liability insurance coverage, protecting both Novelis and supplier from any and all claims and liabilities for property damage, personal injury, death and economic damage, that arise from the material and associated activities hereunder, endorsed as required, at all times while conducting business with Novelis.

***** Specifications are subject to change without prior notice *****