 Steel Dynamics, Inc. Structural & Rail Division 2601 County Road 700 E Columbia City, IN. 46725	<h1 style="margin: 0;">Raw Material Specification</h1>	Document # :	Revision # :	
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Material : Steel Scrap	Grade : All	SDI Part # na
Industry Id : ISRI #'s: na	A.K.A. : na	

Scope :

These general specifications apply to all scrap grades purchased by Steel Dynamics, Inc. for the purposes of melting at the Columbia City, Indiana mill.

Specifications for the various "types" and "grades" of scrap consumed by Steel Dynamics, Inc., Structural and Rail Mill are found in the RMA 1400-XXX-001 series of documents.


Special Definitions :

<u>"downgrade"</u>	When a particular grade of scrap is found to not conform to its represented grade, it may, by agreement by SDI-CCI and supplier, be downgraded and accepted as an inferior grade of scrap.
<u>"free of"</u>	When specified to be "free of", the grade shall not contain any amount of prohibited material in any amount greater than that which is unavoidable in the customary preparation and handling of that particular grade.
<u>"free of alloys"</u>	Scrap is "free of alloys" if the residual content of the elements listed below, contained within the steel, do not occur at levels consistent with the purposeful creation of an Alloy Steel. Residual level of elements contained within the Scrap shall not exceed: Chromium (Cr) 0.20% Nickel (Ni) 0.45% Manganese (Mn) 1.65% Molybdenum (Mo) 0.10% The combined residual level, exclusive of manganese, shall not exceed 0.60%
<u>"Grade", "type"</u>	A classification of scrap type based upon Institute of Scrap Recycling Industries (ISRI) ferrous scrap classification, or; SDI-CCI / vendor description.
<u>"Off-Grade"</u>	A load of scrap shall be considered off grade if it fails to meet: 1. Applicable size limitations 2. Applicable requirements of material "kind" 3. Applicable requirements of material quality as specified in the material's (grade's) Raw Material Specification (RMS).
<u>"NORM"</u>	Naturally Occurring Radioactive Material (radioactive material emitting at less than 2X background radiation level)

General Specifications :

Cast Iron	Unless specifically purchased as a Cast Iron or Pig Iron grade, all scrap grades shall contain less than 1% (by weight) of cast irons. This includes but is not limited to Cast Iron, Pig Iron, composite brake shoes, engine blocks, railway wheels, castings, etc.
Cleanliness	All grades shall be free of excessive rust, corrosion, dirt, oil, or grease.
Hazardous Materials	All grades shall be free of hazardous materials, such as, but not limited to; oil filled devices (e.g. Transformers – even if drained may contain PCB residues), explosives, radioactive materials, electronic waste, etc.
Inspection:	All material is to be suitable and acceptable to Steel Dynamics, Inc.
Lead:	All grades are to be free of Lead and lead containing materials. Lead containing materials include, but are not limited to: batteries, lead-based paints, gasoline tanks, metal guttering and other terne material, mufflers and tail pipes, wheel balancing weights, babbitt, solder, radiators, leaded joints in soil pipe, forklift and equipment counter-weights, etc.
Loading:	All grades must be capable of being loaded and unloaded by electromagnet.

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- Mercury:** All grades are to be free of Mercury and mercury containing materials. Mercury containing materials include, but are not limited to: Mercury wetted or containing Relays, switch gear, rectifiers, gages, manometer, barometers, fluorescent lighting fixtures, etc.
- Non-Ferrous** **Non-Ferrous:** All grades are to be free of Non-Ferrous materials. Non-Ferrous materials include (but are not limited to): copper (electric motors, piping, compressors, wires, brass/bronze castings), aluminum, chromium (plated articles), lead, etc.
- Fracking scrap** All scrap must be free of gas and oil well perforation tools/piping.
- Non-Metallics** All grades are to be free of Non-Metallic Materials. Non-Metallic Materials include, but are not limited to: wood, paper, fiber, plastics, rubbers, foam, fluff, slag, concrete, dirt, grease and oils, etc.
- Off-Grade** The grade shall be free of Off-Grade materials except where the vendor can demonstrate that inclusion of negligible amounts of Off-Grade materials are unavoidable in the customary preparation and handling of the grade involved.
- Radioactivity** All grades shall not contain radioactive materials. Scrap loads found containing radioactive sources are to be immediately rejected and managed in accordance with SOP 6400-006-017 (*Exploranium Alarm Procedure*). Under no circumstances shall any radioactive scrap be subject to acceptance through downgrade.
Potential radioactive items that might be found in the scrap stream are:

Material	Typical Radioisotope(s) found in scrap stream								
	⁶⁰ Co	⁹⁰ Sr	¹³⁷ Cs	¹⁹² Ir	²²⁶ Ra	²³² Th	²⁴¹ Am	norm	other
Industrial gaging devices	X		X		X		X		
Industrial radiography sources	X			X			X		
Medical therapy devices	X		X						
Beta emitting devices		X							
Static eliminators					X		X		
Pipe / casing scale								X	
Contaminated metal	X					X			
Welded pieces						X			

- Sealed Containers** All grades shall not contain Closed, Enclosed or Sealed Containers. Such containers may be accepted providing they have been processed such that; one end has been removed, a minimum of two large holes broach the "sealed" portion of the container, or the container has been cut in half. Closed, Enclosed, or Sealed Containers include (but are not limited to):
- Hydraulic or gas cylinders
 - shock absorbers
 - Air, freon, acetylene, oxygen, propane tanks
 - closed ball valves
 - Automotive rear ends
 - sealed units (e.g. refrigeration compressors)
 - Gear cases
 - any vessel which contains and retains gases, oils, or fluids
- Stainless Steel** All grades shall be free of Stainless Steel
- Tin Plate** All grades shall be free of tin plated materials.

Referenced Documents RMA 1400-XXX-001 – Scrap type Specifications (various)
SOP 6400-006-017 (*Exploranium Alarm Procedure*)

Approvals	Name	Title / Position
	D. Rees-Evans	Manager – Technical Services
	Patrick Lueckenhoff	Melt Shop Metallurgist

Revisions	#	Nature of Change	Effective

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 Structural & Rail Division
 2601 County Road 700 E
 Columbia City, IN. 46725

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**Steel Scrap
 General Requirements**

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0	Original Issue	02 / 12 / 02
1	Additional prohibition on forklift and equipment counter-weights (Lead bearing)	10 / 27 / 04
2	Updated NORM definition & Radioactivity response SOP reference	03 / 23 / 05
3	Corrected document ref number to Exploranium Alarm Procedure	02 / 16 / 07
4	Reapproved	6/23/10
5	Added Electronic waste to hazardous material	08/6/12
6	Included Fracking pipe as prohibited materials	05/13/13