

## Operating Procedure

### Title: Receiving and Inspection of Scrap

#### ATTACHMENT 1 - GENERAL SPECIFICATIONS

The following specifications apply to all of the scrap purchased by Steel Dynamics® Roanoke Bar Division (SD-RBD). All material is to be suitable and acceptable to SD-RBD based on inspection.

1. All grades of scrap shall not contain significant amounts of high-carbon or high-alloy steel (e.g. alloy steel, chrome plated steel, stainless steel, cast iron material, high manganese scrap, high silicon scrap); nonferrous metals (e.g. aluminum, copper, brass, lead,); non-metallics (e.g. dirt, wood, concrete, insulation, rubber, plastic, cloth, paper, oil, grease, or any other non metallic materials); or any other scrap deemed detrimental to our steel making processes.
2. Material containing lead will not be accepted (e.g. batteries, lead-based paints, gas tanks, metal guttering, other terne plated material, mufflers, tail pipes, motor blocks, wheel weights, babbitt, radiators, lead joints).
3. Loads having potentially explosive material (e.g. tanks, cylinders, aerosol cans, shocks, transmissions, torque converters, air conditioning units, gear boxes, metal guttering radiators, electric motors, any item likely to hold oil) will not be accepted.
4. Sealed units cannot be accepted. If a load contains sealed units, two large holes must be cut on each end before the load can be accepted. Sealed units should be situated in the load such that they are visible for inspection at SD-RBD.
5. In the specifications, unless noted otherwise, the following maximum chemistry limits will apply.
 

0.45% max Cu (copper)	0.06% max Mo (molybdenum)
0.20% max Cr (chromium)	0.50% max Si (silicon)
1.65% max Mn (manganese)	0.05% max P (phosphorous)
0.25% max Ni (nickel)	0.05% max S (sulfur)
0.03% max Sn (tin)	
6. Material bought as "special low residual" scrap must not exceed the following maximum chemistry limits.
 

0.10% max Cu	0.02% max Mo	0.08% max Cr
0.25% max Si	0.90% max Mn	0.015% max P
0.08% max Ni	0.01% max S	0.01% max Sn
7. A car must not be top dressed with material that does not constitute a major portion of the material in the car and precludes visual inspection of the car.

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8. SD-RBD must approve any exceptions to these specifications. On normal grades, SD-RBD may, at times, test other materials that may exceed the above chemistry on controlled usage. (Material will be rejected if delivered in a frameless trailer.)
9. Any scrap received not meeting our scrap specification requirements will be subject to a downgrade or full rejection based on the severity of nonconforming material.

## ***SD-RBD SCRAP SPECIFICATION REQUIREMENTS***

### **PLATE & STRUCTUAL**

Clean steel plate and structural shapes, ¼" minimum thickness 8" maximum thickness, cut to 4' x 2' maximum. No un-split pipe and no galvanized material.

**Material causing rejection:** This must not include die blocks, cut up machinery, cam shafts, crank shafts, torque converters, cables, chains, springs, gears or gear boxes, transmissions, electrical panels, motors or motor blocks of any kind, counter weights, and rebar.

### **#1 HEAVY MELT**

Clean steel scrap, ¼" minimum thickness, 8" maximum thickness, and 4' x 2' maximum. Heavy walled pipe is acceptable; over 4" must be split. Dies must be "by approval" only. Cast iron is not to exceed 1% by weight.

**Material causing rejection:** No automotive scrap, gears, cables, chains, powder metallurgy parts and non-metallics, turnings, electrical steels, stainless steels, tin coated steels, lead coated steel, vitreous enameled materials, and white goods are not acceptable.

### **RAILROAD RAIL & OTM**

This includes cropped rail, 80#/yd and heavier, standard section. Cut to 4' maximum length. Rail 80#/yd and less, cut to 3' maximum length. ALL OTM must be 3' and under.

### **#1 BUSHELING**

Clean steel scrap not exceeding 36" in any dimension, 20 gauge minimum thicknesses. Free of coated metal and electrical steel containing over 0.5% Si.

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#### **GALVANIZED #1 BUSHELINGS**

Clean steel scrap not exceeding 36" in any dimension, 20 gauge minimum thicknesses. Free of coated metal and electrical steel containing over 0.5% Si.

#### **#1 RAIL ROAD STEEL**

Clean steel railroad car scrap 3/16" minimum thickness cut to 3' x 2' maximum size. Should include cut bolsters, truck sides and frames. **Maximum of 20% car sides by weight.**

#### **ELECTRIC FURNACE STEEL**

This grade should be considered as a mixture of #1 heavy melting, #2 heavy melting, and plate and structural and should not exceed 50% #2 steel by weight. Refer to Individual grade specifications for acceptable material. Maximum size is 3' x 2'.

#### **#1 BUNDLES**

Steel sheet scrap, clipping, or skeleton scrap compressed into a bundle weighing not less than 75 lbs per cubic ft. This may include chemically defined material and 10% maximum galvanized material.

**Material causing rejection:** No dimension to exceed 48" and no two dimensions to exceed 24". Example of 48" x 24" x 24" is acceptable, 36" x 36" x 36" is not acceptable.

#### **GALVANIZED #1 BUNDLES**

Steel sheet scrap, clipping, or skeleton scrap compressed into a bundle weighing not less than 75 lbs per cubic ft. This may include chemically defined material and 10% maximum galvanized material.

**Material causing rejection:** No dimension to exceed 48" and no two dimensions to exceed 24". Example of 48" x 24" x 24" is acceptable, 36" x 36" x 36" is not acceptable. No heavy galvanized material will be accepted, i.e., 1.5% zinc by weight maximum.

#### **MANDREL AND COIL BUNDLES**

Steel sheet scrap, clippings or skeleton scrap tightly wound with a minimum of three ties. This must be suitable for magnetic handling. Maximum size is 36" in any dimension. May include wire bundles if properly prepared and must have minimum density of 75 lbs per cu ft.

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#### **#2 SHREDDED**

Homogenous steel scrap magnetically separated originating from automobiles, unprepared #1 and #2 miscellaneous baling and sheet iron. Minimum density is 55# per cu ft. This has a maximum of 5% of the material exceeding 10" and no material exceeding 16".

**Material causing rejection:** This must not include tin cans, stampings, punching, or incinerator scrap or electrical material. A maximum of 1% cast iron by weight, .20 max copper.

#### **#2 BUNDLES**

Old black and galvanized steel scrap compressed into a bundle weighing not less than 75 lbs per sq ft.

**Material causing rejection:** No non-metallic material is allowed (i.e. rubber, wood, upholstery, and plastic; with the exception of a minimum of 10% un-stripped appliances.) No dimension to exceed 48" and no two dimensions to exceed 24". May not exceed 40% galvanized material or include tin, lead coated or vitreous enameled material. Motor blocks, transmissions, electrical motors, shocks absorbers, tin cans, electrical materials are not acceptable.

#### **#2 HEAVY MELTING**

Steel scrap 1/8" minimum thickness, 8" maximum thickness. 3' x 2' is maximum size. This can be black or a maximum of 25% galvanized and may not include lead or tin coated or vitreous enameled material. A maximum of eight uncut car wheels per load with weights removed. May include automotive scrap if properly prepared; rear ends, and transmissions must all be cut with at least a 5" hole on two sides. Cast iron must not exceed 1% by weight.

**Material causing rejection:** Torque converters, cylinders or tanks must be cut in half. Powder metallurgy parts and non-metallics, turnings, electrical steels, stainless steels, tin-coated steels, lead-coated steel, vitreous enameled materials, and white goods are not acceptable.

#### **SHEET SLABS**

Cut sheet steel slabs 3' x 18" maximum.

**Material causing rejection:** This must not include automotive slabs.

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#### **TURNINGS**

Clean steel machine shop and/or short shoveling turnings. Must be free flowing and suitable for magnetic handling and have minimum of 40# per cu ft.

**Material causing rejection:** It must not include springy, gushy, tangled, or matted material. Cast iron boring, no ferrous, excessive oil and scale, badly rusted or corroded is not acceptable.

#### **MIXED 1 & 2 SCRAP**

This must meet the 50% requirement for each specific grade. Refer to Individual grade specifications for acceptable material. Maximum size is 3' x 2'.

#### **FLASHINGS**

Steel flashings 1/8" minimum thickness, 3' maximum size. This must be suitable for magnetic handling, i.e., non-tangling and a minimum density of 50 lbs cu ft.