

## Ferrous

- The best way to describe ferrous metals is that they are magnetic. These metals tend to be much bulkier than non-ferrous metals therefore requiring more space. Ferrous metals are bought & sold by the ton with significantly lower values compared to non-ferrous metals.



## Ferrous - Level 1

- Tin
  - **Description**
    - Any light gauge steel is considered tin. These items can range from home appliances to siding.
  - **Upgrade potential**
    - Within a truckload of tin, there might be some heavy gauge ferrous material such as HMS and/or P&S that can easily be sorted and upgraded. From time-to-time aluminum might be found mixed within tin in the form of aluminum siding; this further reiterates the importance of carrying a magnet at all times.
  - **ISRI definition** [\*prepared for shipping to mills]
    - **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.



- Heavy Melt Steel [HMS]
  - **Description**
    - This material has two main categories: HMS# 1 is primarily heavy gauge material that is thicker than ¼ inch and cut down to 5'X2'. HMS #2 typically has a mix of light and heavy gauge material.
  - **Upgrade potential**
    - Within a truckload of HMS there are typically upgrades in the form of P&S which is usually ½” or thicker material. An experienced operator will notice the difference and sort the pile accordingly.
  - **ISRI definitions**
    - **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.
    - **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 ensure compact charging however, to be free of sheet iron or thin gauged material.



- **Cast Iron**

- **Description**

- The difference between Cast Iron and steel is the carbon content. Cast Iron has more carbon and is brittle compared to steel. This material comes from a mold and has a shape. When dropped from some height onto a hard surface, this material will break apart. Examples of where this material will come from include demolition sites, auto body shops (drums and rotors), old furnaces, and cookware.

- **Upgrade potential**

- There might be HMS, P&S, and possibly Cast Aluminum [Tense] mixed in with your Cast Iron; and those items have a higher dollar value.
- Knowing the Cast Iron chemistry and breaking it into sizes suitable for the foundry will get you a premium price.
- Understanding the difference between the export and domestic market will also allow for pricing variance due to the ability to blend Cast Iron with HMS in the export market.

- **ISRI definition**

- **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.



- Plate & Structural [P&S]
  - **Description**
    - Plate and structural steel mainly come from construction and demolitions; think of bridges, highrises, and commercial buildings. This material will often be in the form of an I-beam or plate over ½” thick. P&S is one of the higher grades of steel due to its high recovery when melted.
  - **Upgrade potential**
    - Since this is one of the higher grades of ferrous material, few upgrades are available other than sorting by size. Pieces cut under 5’x2’ can render a premium; however, pieces of steel in the size of 1’ to 2’, with known chemistry, will be provided the maximum dollar value. The material will need to fit into the foundries furnace, hence why the size of P&S matters.
  - **ISRI definition**
    - **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.



## Ferrous - Level 2

- Busheling
  - **Description**
    - Busheling are pieces of metal cut from metal production, typically from industrial accounts. This material must be clean, new factory stamps or clippings, and may not be auto body material of any kind. Busheling is considered the highest grade of ferrous scrap due to its recovery and chemistry.
  - **Upgrade potential**
    - Uniform chemistry is essential to receive the best price for this material, so it is important to visit the source or use an analyzer.
  - **ISRI definition**
    - **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.



- Manganese
  - **Description**
    - Manganese is steel that has been hardened with 12-20% manganese added to the chemistry, making it one of the most resistant to wear and damage over any other metals. Crusher cones and plates, railroad frogs, grates & hammers are a few items considered manganese. Manganese can look similar to P&S and is classified as a ferrous material, although it has a slight magnetic draw.
  - **Upgrade potential**
    - This material might be purchased as P&S; however, when tested with a magnet or an analyzer, it will be identified as a higher value item.



- Vehicles
  - **Description**
    - Scrap vehicles are end of life cars and trucks. While these vehicles are no longer street-worthy and aren't worth salvaging, they are a worthwhile commodity in the scrap yard. Yards equipped to receive vehicles can be rewarded with approximately 2,400 pounds of steel and 300 pounds of aluminum per vehicle. Some scrap yards can take a vehicle as-is and will put it through a depollution system onsite to remove fluids prior to recycling. Depolluted vehicles will then be sent to a shredder to be broken into small pieces.
  - **Upgrade potential**
    - There are many upgrades that come from vehicles such as lead/acid batteries, harness wire, aluminum wheels, starters, alternators, and catalytic converters.



- Shred
  - **Description**
    - Shred is a term used to describe a blend of tin, automobiles, and unprepared steel that has been shredded.
  - **Upgrade potential**
    - Shredded electric motors are removed during the sorting process.
  - **ISRI Definition**
    - **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.

