Technical Data Sheet: HSM2 and HSM1 Scrap Metal

HSM2 Scrap Metal (Heavy Scrap Metal 2)

General Information:

- Product Name: HSM2 Scrap Metal (Heavy Scrap Metal 2)
- Product Code: HSM2-FER-002
- Category: Ferrous Scrap / Heavy Scrap Metal
- Material: Steel, Iron
- Quality Standard: ISO 9001, EN 10088-3
- Product Condition: More fragmented than HSM1, with a higher presence of non-ferrous materials.
- Average Piece Size: 100 mm x 200 mm (some fragments may be smaller).
- Average Piece Weight: 1 - 15 kg.
- Material Form: Fragments of industrial parts, vehicle remains, machine components, recycled steel pieces.

Chemical Composition:

Element	Percentage (%)
Iron (Fe)	85% - 95%
Carbon (C)	0.10% - 0.25%
Silicon (Si)	0.30% - 0.60%
Manganese (Mn)	0.30% - 0.80%
Sulfur (S)	< 0.05%
Phosphorus (P)	< 0.05%
Copper (Cu)	< 1.00%
Others	Aluminum, Zinc, Nickel

Physical Properties:

- Bulk Density: 7.80 g/cm³ (approx.).
- Melting Point: 1,450°C (approx. for steel).
- Tensile Strength: 250 - 500 MPa.
- Elongation: 8% - 15%.
- Brinell Hardness (HB): 100 - 140 HB.

Quality Requirements:

- Permitted Contamination: A higher presence of impurities such as non-ferrous metals (aluminum, copper, zinc) is allowed but must remain below approximately 5%.
- Scrap Condition: Material must be fragmented and free from hazardous contaminants such as plastics, wood, or excess non-ferrous materials.
- Piece Size: Fragments should be smaller than 200 mm.

Inspection and Quality Control:

- Visual Inspection: Ensure the pieces are suitable and not excessively contaminated.
- Chemical Analysis: Spectroscopy or X-ray fluorescence (XRF) to verify that non-ferrous elements do not exceed permitted levels.
- Mechanical Testing: Random evaluation of the resistance and durability of the pieces.
- Weight Test: Control to ensure the correct amount of material is delivered.

Main Uses:

- Steel production for general use, including construction products.
- Metal recycling for heavy industry.
- Manufacturing industrial products where higher impurity levels are acceptable.

Transportation and Storage Conditions:

- Storage Conditions: Store in dry, ventilated areas, avoiding exposure to water or corrosive substances.
- Transportation Recommendations: Transport in closed or covered containers to prevent fragment spillage and contamination with other materials.
- Precautions: Ensure no mixing with other types of scrap or hazardous materials. Proper labeling and classification must be maintained during transportation.

Additional Notes:

- Ensure that the pieces do not contain hazardous materials or chemical contaminants.
- Weight and exact material quantity may vary depending on the supplier and scrap source.
- Material inspection is recommended before purchase.

HSM1 Scrap Metal (Heavy Scrap Metal 1)

General Information:

- Product Name: HSM1 Scrap Metal (Heavy Scrap Metal 1)
- Product Code: HSM1-FER-001
- Category: Ferrous Scrap / Heavy Scrap Metal
- Material: Steel, Iron
- Quality Standard: ISO 9001, EN 10088-3, AISI 1010, AISI 1045
- Product Condition: Clean scrap, free from non-metallic contaminants or mixed non-ferrous metals.
- Average Piece Size: 300 mm x 500 mm (depending on the scrap source).
- Average Piece Weight: 5 - 30 kg.
- Material Form: Large steel and iron pieces such as industrial machinery parts, heavy vehicle components, construction equipment, and metal structures.

Chemical Composition:

Element	Percentage (%)
Iron (Fe)	95% - 98%
Carbon (C)	0.05% - 0.20%
Silicon (Si)	0.20% - 0.50%
Manganese (Mn)	0.50% - 1.00%
Sulfur (S)	< 0.05%
Phosphorus (P)	< 0.05%
Copper (Cu)	< 0.50%
Others	Zinc, Aluminum, Nickel

Physical Properties:

- Bulk Density: 7.85 g/cm³ (approx.).
- Melting Point: 1,500°C (approx. for steel).
- Tensile Strength: 300 - 600 MPa.
- Elongation: 10% - 20%.
- Brinell Hardness (HB): 120 - 150 HB.
- Thermal Conductivity: 50 W/m·K.
- Electrical Conductivity: 6 - 10% IACS.

Quality Requirements:

- Material Purity: Clean scrap, free from non-metallic contaminants such as plastics, rubber, wood, etc. Non-ferrous metals must be minimal (below 0.5% of the total load).
- Scrap Condition: Pieces must be free from paint, coatings, plastics, and other contaminants. No residues of liquids or hazardous materials should be present.
- Piece Size: Pieces must be larger than 100 mm to avoid mixing with other types of scrap.

Inspection and Quality Control:

- Visual Inspection: Ensure no external contamination or non-metallic elements are present.
- Chemical Analysis: Use optical emission spectrometry (OES) or X-ray fluorescence (XRF) to ensure the chemical composition meets established standards.
- Mechanical Testing: Random hardness and resistance testing of selected pieces.
- Weight Test: Control the load weight to ensure the correct amount of material is delivered as per the agreement.

Main Uses:

- Steel Manufacturing: Used as raw material for high-quality steel production, primarily for rebar, wire rod, and metal profiles.
- Metal Recycling: Suitable for recycling in the steel industry, especially in the production of beams, metal structures, and plates.
- Automotive Industry: Recycled components from HSM1 are sometimes used to manufacture metal parts for the automotive and heavy machinery industries.

Transportation and Storage Conditions:

- Storage Conditions: Store in a dry, well-ventilated area, with controlled temperature and humidity to prevent corrosion or contamination.
- Transportation Recommendations: Transport in closed containers or trucks to protect the load from moisture, contamination, or damage during transit.
- Precautions: Ensure pieces are not mixed with non-ferrous scrap or contaminants during transport. Avoid contact with flammable or corrosive substances that may react with steel.

Standards and Certifications:

- Quality Certification: ISO 9001 for quality management in scrap production and handling.
- Environmental Standards: Complies with local environmental regulations for metal scrap recycling, ensuring no hazardous compounds are released during the recycling process.
- Safety Certification: Compliance with safety standards for handling, storage, and transportation of heavy recyclable materials.

Additional Notes:

- The maximum allowable amount of non-ferrous impurities must remain below 0.5%.
- The size, weight, and composition of the pieces may vary slightly depending on the scrap source.