



EU-27 Steel Scrap Specification

EFR

In replacement of all previous EFR specifications,
whether standing alone or jointly agreed with other legal entities.

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EFR, the European Ferrous Recovery and Recycling Federation is located in Brussels, Belgium.

EFR was created in 1992 from COFENAF the Liaison Committee for ferrous scrap within the E.E.C., which was founded in 1967. EFR members are national associations and federations in the EU Member States representing the interests of commercial firms that are primarily involved in the collection, trade, processing and recycling of ferrous scrap. In the EU Member States, more than a thousand large companies and SMEs are represented through EFR.

EU-27 Steel Scrap Specification

General Conditions applicable to all grades

As is practically achievable in customary preparation and handling of the grade involved

The definitions of this list of specifications apply only to non-alloy carbon steel scrap as raw material for the steel industry.

Environmental, health and safety considerations

A) SAFETY

All grades shall exclude:

1) pressurised, closed or insufficiently open containers of all origins which could cause explosions. Containers shall be considered as insufficiently open where the opening is not visible or is less than 10 cm in any one direction;

2) dangerous material, inflammable or explosive, fire-arms (whole or in part), munitions, dirt or pollutants which may contain or emit substances dangerous to human health or to the environment or to the steel production process;

All grades shall be checked, within the limitations of accessibility and in strict compliance with appropriate detection equipment for radioactivity, to identify:

- material presenting radioactivity in excess of the ambient level of radioactivity
- radioactive material in sealed containers even if no significant exterior radioactivity is detectable due to shielding or due to the position of the sealed source in the scrap delivery.

B) STERILES (cleanliness)

All grades shall be free of all but negligible amounts of other non-ferrous metals and non-metallic materials, earth, insulation, excessive iron oxide in any form, except for nominal amounts of surface rust arising from outside storage of prepared scrap under normal atmospheric conditions.

All grades shall be free of all but negligible amounts of combustible non-metallic materials, including, but not limited to rubber, plastic, fabric, wood, oil, lubricants and other chemical or organic substances.

All scrap shall be free of larger pieces (brick-size) which are non-conductors of electricity such as tyres, pipes filled with cement, wood or concrete.

All grades shall be free of waste or of by-products arising from steel melting, heating, surface conditioning (including scarfing) grinding, sawing, welding and torch cutting operations, such as slag, mill scale, baghouse dust, grinder dust, and sludge.

C) RESIDUAL AND OTHER METALLIC ELEMENTS

Copper

All grades shall be free of visible metallic copper which means free of copper - wound electric motors, sheets and copper coated materials, bearing shells, winding, and radiator cores.

All grades shall be free of all but negligible amounts of wire, insulated wire and cable tubing, and other copper, brass items mixed with, attached to, or coating ferrous scrap.

All grades shall be free of material with high dissolved copper content such as rebars and merchant bars which will be grouped in the high residual grades.

Tin

All grades shall be free of tin in any form such as tin cans, tin coated materials etc. as well as bronze elements such as rings, bearing shells etc.

Lead

All grades shall be free of lead in any forms such as batteries, solder, wheel weights, terne plate, cable ends, bearings, bearing shells etc.

Chromium, Nickel, Molybdenum

All grades shall be free of alloyed steels and stainless steels as well as of mechanical parts (which mainly contain these elements) such as motors, drive gears for trucks, axles, gear boxes, gear wheels, tools and dies as well as non-magnetic pieces.

Aimed analytical content (see Table 2 of this specification)

The levels indicated for certain of these metallic elements in the different grades listed here, are the typical maximum contents.

Supply of scrap not falling within the analytical limits of this list of grades is, nevertheless, permitted with specific prior agreement between supplier and consumer based on the knowledge of the real nature/content of the material in question.

Specific or contractual maximum contents are subject to agreement between supplier and purchaser and should be specified when ordering.

D) MIXTURE OF GRADES

No delivery shall contain a mixture of grades, unless by joint agreement.



Table 1: EFR's EUROPEAN STEEL SCRAP SPECIFICATION

Category	Specification	Description	Dimensions	Density	Steriles (1)
OLD SCRAP	E3	Old thick steel scrap, predominantly more than 6mm thick in sizes not exceeding 1.5 x 0.5 x 0.5 m, prepared in a manner to ensure direct charging. May include tubes and hollow sections. Excludes vehicle body scrap and wheels from light vehicles. Must be free of rebars and merchant bars, free of metallic copper, tin, lead (and alloys), mechanical pieces and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.	Thickness ≥ 6mm <1.5 x 0.5 x 0.5 m	≥ 0.6	≤ 1 %
	E1	Old thin steel scrap predominantly less than 6 mm thick in sizes not exceeding 1.5 x 0.5 x 0.5 m prepared in a manner to ensure direct charging. If greater density is required it is recommended that maximum 1 metre is specified. May include light vehicle wheels, but must exclude vehicle body scrap and domestic appliances. Must be free of rebars and merchant bars, free of metallic copper, tin, lead (and alloys), mechanical pieces and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.	Thickness < 6mm <1.5 x 0.5 x 0.5 m	≥ 0.5	< 1.5 %
	E2	Thick new production steel scrap predominantly more than 3mm thick prepared in a manner to ensure direct charging. The steel scrap must be uncoated unless permitted by joint agreement and be free of rebars and merchant bars even from new production. Must be free of metallic copper, tin, lead (and alloys), mechanical pieces and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.	Thickness ≥ 3 mm <1.5 x 0.5 x 0.5 m	≥ 0.6	< 0.3 %
NEW SCRAP Low Residuals Uncoated (2)	E8	Thin new production steel scrap predominantly less than 3mm thick prepared in a manner to ensure direct charging. The steel scrap must be uncoated unless permitted by joint agreement and be free of unbound ribbons to avoid trouble when charging. Must be free of metallic copper, tin, lead (and alloys), mechanical pieces and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.	Thickness < 3 mm <1.5 x 0.5 x 0.5 m (except bound ribbons)	≥ 0.4	< 0.3 %
	E6	New production thin steel scrap (less than 3mm thick) compressed or firmly baled in a manner to ensure direct charging. The steel scrap must be uncoated unless permitted by joint agreement. Must be free of metallic copper, tin, lead (and alloys), mechanical pieces and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.		≥ 1	< 0.3 %



Category	Specification	Description	Dimensions	Density	Steriles (1)
SHREDDED	E40	Shredded steel scrap. Old steel scrap fragmentized into pieces not exceeding 200 mm in any direction for 95% of the load. No piece, in the remaining 5%, shall exceed 1000mm. Should be prepared in a manner to ensure direct charging. The scrap shall be free of excessive moisture, loose cast iron and incinerator material (especially tin cans). Must be free of metallic copper, tin, lead (and alloys), and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.		>0.9	< 0.4 %
	E5H	Homogeneous lots of carbon steel turnings of known origin, free from excessive bushy. Should be prepared in a manner to ensure direct charging. Turnings from Free Cutting Steel must be clearly identified. The turnings must be free from all contaminants such as non-ferrous metals, scale, grinding dust and heavily oxidized turnings or other materials from chemical industries. Prior chemical analysis could be required.			(*)
STEEL TURNINGS (3)	E5M	Mixed lots of carbon steel turnings, free from excessive bushy and free from turnings from Free Cutting Steel. Should be prepared in a manner to ensure direct charging. The turnings must be free from all contaminants such as non-ferrous metals, scale, grinding dust and heavily oxidised turnings or other materials from chemical industries.			(*)
	EHRB (4)	Old and new steel scrap consisting mainly of rebars and merchant bars prepared in a manner to ensure direct charging. May be cut, sheared or baled and must be free of excessive concrete or other construction material. Must be free of metallic copper, tin, lead (and alloys), mechanical pieces and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.	Max. 1.5 x 0.5 x 0.5 m	≥ 0.5	<1.5 %
HIGH RESIDUAL SCRAP	EHRM (5)	Old and new mechanical pieces and components not accepted in the other grades prepared in a manner to ensure direct charging. May include cast iron pieces (mainly the housings of the mechanical components). Must be free of metallic copper, tin, lead (and alloys) and pieces such as bearing shells, bronze rings and others as well as steriles, to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.	Max. 1.5 x 0.5 x 0.5 m	≥ 0.6	<0.7 %

Category	Specification	Description	Dimensions	Density	Steriles (1)
FRAGMENTIZED SCRAP FROM INCINERATION	E46	Fragmentized incinerator scrap. Loose steel scrap processed through an incinerating plant for household waste followed by magnetic separation, fragmentized into pieces not exceeding 200 mm in any direction and consisting partly of tin coated steel cans. Should be prepared in a manner to ensure direct charging. The scrap shall be free of excessive moisture and rust. Must be free of excessive metallic copper, tin, lead (and alloys) and steriles to meet the aimed analytical contents. Refer to points B) and C) of the general conditions.		≥ 0.8	Fe content ≥ 92 %

- (1) Corresponds to the weight of steriles, not adhering to the scrap, remaining at the bottom of the vehicle after unloading by magnet
- (2) Coated Material must be notified
- (3) Free from all contaminants (non-ferrous metals, scale, grinding dust, chemical materials, excess oil)
- (4) Rebar and Merchant Bar must be classified apart due essentially to the copper content which could place them out with old scrap and new scrap low residual grades.
- (5) Mechanical and engine components must be classified apart principally due to their Ni, Cr and Mo content which could place them out with the thick old scrap and heavy new scrap low residual grades.
- (*) To date, no clear method to determine these values.



Table 2: AIMED ANALYTICAL CONTENTS

The values retained for the analytical contents are those that have been experienced in real terms in the various countries of the European Union and are achieved by scrap yards working normally with standard methods and standard equipment.

Category	Specification	Aimed Analytical Contents (residuals) in %				
		Cu	Sn	Cr, Ni, Mo	S	P
OLD SCRAP	E3	≤0.250	≤0.010	Σ≤0.250		
	E1	≤0.400	≤0.020	Σ≤0.300		
NEW SCRAP Low Residuals, Uncoated (2)	E2	Σ≤0.300				
	E8	Σ≤0.300				
	E6	Σ≤0.300				
SHREDDED	E40	Σ≤0.250	Σ≤0.020			
STEEL TURNINGS (3)	E5H	Prior chemical analysis could be required				
	E5M	≤0.400	≤0.030	Σ≤1	≤0.100	
HIGH RESIDUAL SCRAP	EHRB	≤0.450	≤0.030	Σ≤0.350		
	EHRM	≤0.400	≤0.030	Σ≤1.0		
FRAGMENTED SCRAP FROM INCINERATION	E46	≤0.500	≤0.070			





ENVIRONMENTAL QUALITY CRITERIA

The steel scrap must meet the following environmental quality criteria:

- There must be no substantial contamination of the scrap as laid out in the descriptions of the EU-27 Steel Scrap Specification or equivalent national Member State or international specifications.
- There must be no substantial mixing with hazardous waste, defined as waste marked with an asterisk (*) in Commission Decision 2001/118/EC as amended (OJ L 47,16.02.2001,p.1.).
- All grades shall be checked, within the limitations of accessibility and in strict compliance with appropriate detection equipment for radioactivity, to identify:
 - material presenting radioactivity in excess of the ambient level of radioactivity
 - radioactive material in sealed containers even if no significant exterior radioactivity is detectable due to shielding or due to the position of the sealed source in the scrap delivery.

Conformance to the above criteria must be ascertained by visual inspection (or sampling and evaluation) and testing for radioactivity.





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