

Material Description

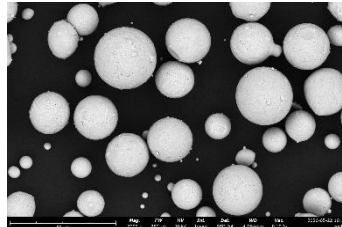
GMP EUROFER97 powders have been optimised for use in Additive Manufacturing (AM) and Hot Isostatic Pressing (PM-HIP).

GMP EUROFER97 powder has been successfully proven in AM across the broad spectrum technologies.

GMP EUROFER97 is a Reduced Activation Ferritic/Martensitic (RAFM) steel, developed for use in nuclear fusion reactors. It has been designed to reduce long-term radioactive waste by minimising the elements that have long-lived isotopes. **GMP EUROFER97** offers high-temperature strength and withstands neutron irradiation that could cause embrittlement.

Powder Images

Typical microscopy image of **GMP EUROFER97 -53+15**



Powders are supplied in a variety of standard and custom sizes.

Part Example

Awaiting part image

Material Properties

- High-temperature strength
- High creep and fatigue resistance
- Good thermal conductivity

Typical Applications

- First wall and reactor blanket structures

Relevant Sectors

- Nuclear and Fusion

Powder Properties

item no.	GMP EUROFER97 -45+15		
PSD	15-45µm	Application	PBF
item no.	GMP EUROFER97 -53+20		
PSD	20-53µm	Application	PBF
item no.	GMP EUROFER97 -53+15		
PSD	15-53µm	Application	PBF
item no.	GMP EUROFER97 -150+45		
PSD	45-150µm	Application	DED
item no.	GMP EUROFER97 -106+45		
PSD	45-106µm	Application	EBM
item no.	GMP EUROFER97 -300		
PSD	<300µm	Application	HIP
General Properties			
PSD	d10, d50, d90 reported		
Apparent Density	Measured and reported		
Flow	Measured and reported		

Chemical Composition

Fe	bal.
C	0.09 – 0.12
Cr	8.5 – 9.5
W	1.0 – 1.2
Mn	0.20 – 0.60
V	0.15 – 0.25
Ta	0.10 – 0.14
N	0.015 – 0.045
P	≤0.005
S	≤0.005
B	≤0.002
O	≤0.030
Nb	≤0.01
Mo	≤0.01
Ni	≤0.01
Cu	≤0.01
Al	≤0.01
Ti	≤0.02
Si	≤0.05
Co	≤0.01

- wt%

Industry Powder Names

Generic name Eurofer97

Atomisation Process

- Vacuum inert gas atomisation
- Anti-Satellite technology
- Argon gas atomised

Powder Quality

- Highly Spherical
- Very few satellites
- Excellent flowability

Applicable Specification

Physical Properties

Material	Condition	YS, MPa	UTS, MPa	%E	Charpy energy @20C, J	Charpy energy @-75C, J
GMP Eurofer97 AM*	Heat treated	577	715	25	266	103
GMP Eurofer97 HIP	Heat treated	497	634	26	250	-
Wrought	Heat treated	550	650	22	250	100

*measured values of specimens produced by L-PBF (Renishaw AM400)

Heat Treatment

Information on heat treatment and stress relieving can be provided by our technical experts by contacting: gmp@globusmetalpowders.com

Inhouse Materials Development

In addition to Eurofer97, Globus Metal Powders is also developing bespoke RAFM steels for use as AM and PM-HIP powders. These include variants that can be described as Castable Nanostructure Alloys (CNA) and Oxide Dispersion Steels (ODS).

Contact

Globus Metal Powders is committed to providing our global customers with world-beating customer service through direct support, metallurgy and AM experts, and a family of authorised distribution partners.

Globus Metal Powders offers a diverse range of metal powders and alloys for Additive Manufacturing (AM) and Hot Isostatic Pressing (PM-HIP), along with next generation alloy development maximising the potential benefits and solutions that AM and PM-HIP can deliver.

Our core range of metal powders includes steel, stainless steel, nickel, cobalt and bespoke alloys.

Globus Metal Powders Ltd

Eston Road
Middlesbrough
TS6 6US
United Kingdom

Further information available at www.globusmetalpowders.com

Mechanical and physical properties are provided for guidance only and depict typically achievable properties and are not provided as guaranteed values or design data. Results achieved can vary significantly depending on AM processes, parameters, and part design/geometry. Globus Metal Powders has made considerable efforts to ensure the accuracy of the contents detailed within this document, however, makes no warranties or representations regarding them. Globus Metal Powders excludes liability, howsoever arising, for any inaccuracies in this document.

