Technical Data Sheet
Datasheet_v0207 251020

METALPINE
THE ART OF SPHERICAL POWDER

HIGHLY SPHERICAL – PORE FREE METAL POWDER

ISO 9001
AS/EN 9100

High-quality powder for additive manufacturing and more ...
Overview of available powders:

Material class	Name	UNS	ASTM	DIN	EN (European Standard)	Other Standards	Material characteristics
Copper alloys	**MET Cu-OF**	C10200	ASTM B152, ASTM B187	2.0040	CW008A	OFHC (Oxygen-Free High Conductivity Copper)	High purity oxygen-free copper with the highest thermal and electrical conductivity (>99,95% Cu).
	MET CuNi2SiCr	C18000	ASTM B422	2.0855	CW111C	-	Thermally curable low-alloyed copper alloy; higher strength and hardness but slightly decreased thermal and electrical conductivity compared to CuCr1Zr.
	MET CuCr1Zr	C18150	ASTM B441, ASTM B534	2.1293	CW106C	RWMA Class 2	Hardenable copper alloy, combining high strength and hardness with good thermal and electrical conductivity.
	MET GRCop-42	-	NASA-Specific Alloy	-	-	Copper Alloy (Cu-Cr-Nb)	Dispersion-strengthened copper alloy with high strength, good conductivity, and resistivity against low cycle fatigue. - Cu4Cr2Nb (at.%)
	MET-CuNi10	C70600	ASTM B151, ASTM B122	2.0872	CW352H	CuNi 90/10	High corrosion resistance copper alloy with increased seawater resistance through increased Nickel content.
	MET-CuNi30	C71500	ASTM B171, ASTM B466	2.0882	CW354H	CuNi 70/30	High corrosion resistance for marine, offshore and chemical applications. From cryogenic temperatures up to 400°C with good mechanical properties UTS 510MPa & >20% elongation
Stainless Steels	**MET 1.4306**	S30403	ASTM A240, ASTM A276	1.4306	X2CrNi19-11	AISI 304L	Austenitic chromium-nickel steel with a low carbon content (<0,030%); higher content of chromium and nickel results in increased corrosion resistance than 1.4301 or 1.4307.
	MET 1.4404	S31603	ASTM A240, ASTM A276	1.4404	X2CrNiMo17-12-2	AISI 316L	Austenitic chromium-nickel-molybdenum steel with a low carbon content (<0,030%); good resistance to chloric media and non-oxidizing acids.
	MET 1.4462	S31803 / S32205	ASTM A182, ASTM A240, ASTM A789, ASTM A790	1.4462	X2CrNiMoN22-5-3	Duplex 2205, SAF 2205	With greater resistance to stress corrosion cracking (SCC), pitting, and crevice corrosion than standard austenitic stainless steels
Nickel Alloys	**MET Ni**	N02200	ASTM B160, ASTM B162	2.4066 (Ni 200)	NW2200	Pure Nickel	Highly electrical and thermal conductible material, is employed in extensive corrosive environments.
	MET Alloy K500	N05500	ASTM B865	2.4375	NA18	Monel K-500	High strength and hardness nickel-copper alloy with excellent corrosion resistance, suitable for marine technology and chemistry.
	MET IN718	N07718	ASTM B637, ASTM F3055	2.4668	NC19FeNb	Inconel 718	Nickel-chromium-iron alloy with niobium, molybdenum, aluminium, and titanium, leading to outstanding mechanical properties and corrosion resistance.
	MET IN625	N06625	ASTM B443, ASTM B446	2.4856	NC22DNB4	Inconel 625	Low carbon nickel-chromium-molybdenum-niobium alloy enabling service temperatures from cryogenic to 982°C and outstanding corrosion resistance
Titanium Alloys	**MET Ti Grade 5**	R56400	ASTM B265, ASTM B348	3.7165	Ti64	Ti-6Al-4V	Age hardenable titanium-aluminium-vanadium alloy offering an excellent combination of strength, toughness, and ductility with good biocompatibility
	MET Ti Grade 23	R56401	ASTM F136	3.7164	Ti64 ELI	Ti-6Al-4V ELI	"Extra low interstitials" by reduced oxygen and nitrogen content, used for medical and aerospace applications
	MET Ti Grade 2	R50400	ASTM B265, ASTM B348	3.7035	T40	CP Titanium	Pure titanium with excellent biocompatibility and a favorable strength to density ratio for high mechanical performance.
Molybdenum	**MET Mo**	R03610	ASTM B387	2.0615	-	Mo 99%	High melting temperature and low thermal expansion coefficient enable operational temperatures up to 1900°C
Niobium	**MET Nb**	R04200	ASTM B393	2.4100	-	Nb 99,8%	For high-temperature applications exceeding 1200°C and the biomedical field due to its high melting point (2468 °C), with outstanding osteogenic properties and low cytotoxicity.

Other materials on request

Comment for additional note

"Medical" Note 1:
This powder has not been developed, tested, or certified as a medical device according to Directive 93/42/EEC (MDD) or Regulation (EU) 2017/745 (MDR). It is not intended as a medical device, particularly for the purposes specified in Art. 2 No. 1 MDR. Insofar as you intend to use the powder as raw material for the manufacture of pharmaceutical products or medical devices (e.g., as raw material, which as material

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

must meet the requirements of Annex 1, Chapter II MDR), the responsibility and liability for all analyses, tests, evaluations, procedures, risk assessments, conformity assessments, approval, and certification procedures as well as for all other official and regulatory measures required for this purpose shall lie solely with you both concerning the pharmaceutical product and/or medical device manufactured by you and about the properties, suitability, testing, evaluation, risk assessment, other requirements for the use of the powder as raw material. In this respect, the limitations of liability under our General Terms and Conditions and the system sales or material contracts shall apply.

"Dual Use" Note 2:
These goods are subject to the European or Austrian export license requirement when exported from the EU. Please note that a licensing requirement may also result from the final destination and the intended use of the goods (**dual use**).

Additional information to our powder production:

According to your needs, any metal or alloy can be atomized with our proprietary process. All products can be produced in narrow particle size distributions (PSD), as shown below; other PSDs are available on request.

PSD [µm]	$d10_{min}$ [µm]	$d90_{max}$ [µm]	Technology
5 - 20	4	25	Metal Injection Moulding/Cold Spray
15 - 45	10	48	Cold Spray/Binder Jetting/Laser Powder Bed Fusion
15 - 53	10	56	Standard for Powder Bed Applications
20 - 63	18	66	Laser Powder Bed Fusion
45 - 116	40	118	Electron Beam Powder Bed Fusion/DED
50 - 150	50	133	Directed Energy Deposition

COMMISSION PROCESSING

Metalpine GmbH is your service partner for the high-quality production of spherical metal powders and related preparation processes.

lowest CO_2 impact

Powder production

We developed a unique powder production process to provide perfect spherical powders (patented). Any metal or alloy can be atomized according to your needs. Our processes are run with Argon 5.0 as atomization gas in a dust-free production environment to guarantee maximum product quality. All subsequent processes (production, classifying, screening, packaging) can be done under Argon atmosphere to ensure an oxygen-free production line.

Backup powder production and R&D plant

Supplementary to our production site in Graz, we have a second production line in Niklasdorf, Austria. The secondary plant is mainly dedicated to R&D but is available as a backup production line to increase flexibility for our customers.

Powder screening

We can screen your powder with various screening technologies at grain sizes ranging from 10 to 1000 microns.

Powder classifying

Our state-of-the-art classifiers can provide narrow particle size distributions, produce ultrafine powders, or remove dust from your powders.

Pore Free & highly spherical

"Pore Free" is defined with 0% pores and with "highly spherical" we understand a sphericity >0,9.

Packaging

With our 17 Sustainable Development Goals in mind, we try to reduce the amount of waste by offering different packaging than commonly used white bottles, which are thrown away after usage. Of course, we pack the powders according to our customer's needs and help to manage transport organization.

Laboratory Services

Our in-house laboratory measures particle size distributions with laser light scattering (ISO 13320) and digital image processing (ISO 13322-2). Additionally, we offer tab density measurements (ISO3953, ASTM B527) and flowability measurements by Hall Flow Meter (ISO 4490, ASTM B213). For more complex flowability problems, Schulze Ring Shear tests can be conducted by our university partners, and additionally, we offer analysis of our products in collaboration with certified laboratories.

Certification

Aerospace accreditation **AS / EN9100**

Quality Management System according to **ISO 9001**

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

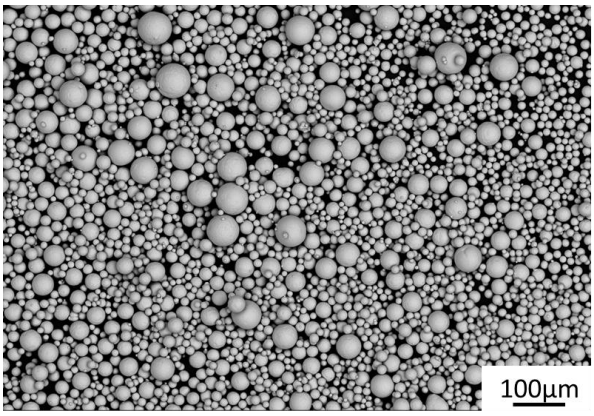
Copper Alloy: MET Cu-OF 99,95

overview - product table

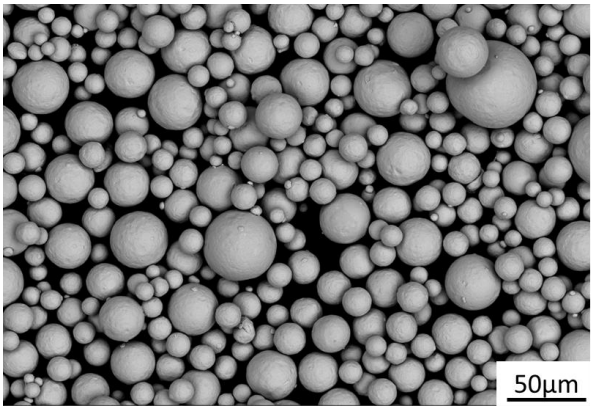
Alternative designation: UNS C10200 / ASTM B152, ASTM B187 / DIN 2.0040 / CW008A / OFHC (Oxygen-Free High Conductivity Copper)

Description and general material properties

MET Cu-OF is pure, oxygen-free Copper with a minimum of 99,95% Cu. It combines the advantages of Cu-ETP (= CW004A / 2.0065) and phosphor deoxidized Copper materials. The high pureness of the material combined with missing oxygen inclusions allows excellent electrical conductivity and is not affected by hydrogen embrittlement. Therefore, MET Cu-OF has better deformability and superior solder- and weldability than Cu-ETP. Typical applications are electrical and electronic components, for example, in the communication industry.



Scanning electron microscopy image of Cu-OF powder (100x)



Scanning electron microscopy image of Cu-OF powder (300x)

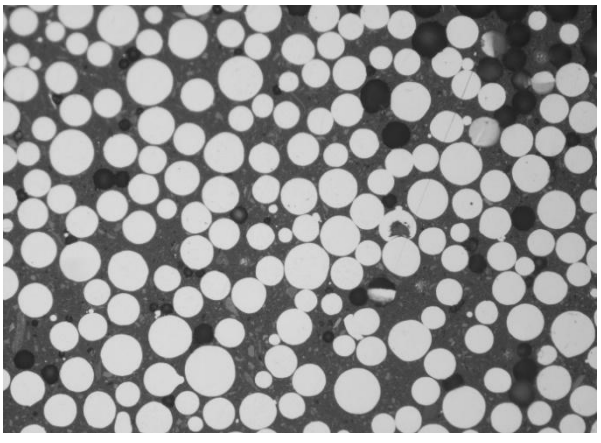
Powder properties

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Pb		0,005
O		0,05
Bi		0,005
Cu	99,95	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g]2	20
Apparent density [g/cm³]3	4,6

*exemplary values for PSD 15-45 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11


Microsection - Powder PSD: 20 – 63µm

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

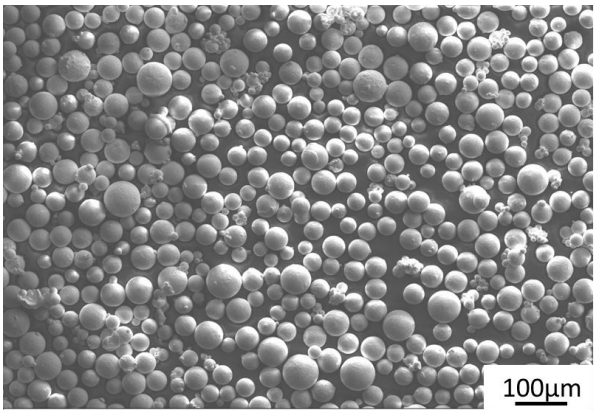
Copper Alloy: MET CuNi2SiCr

overview - product table

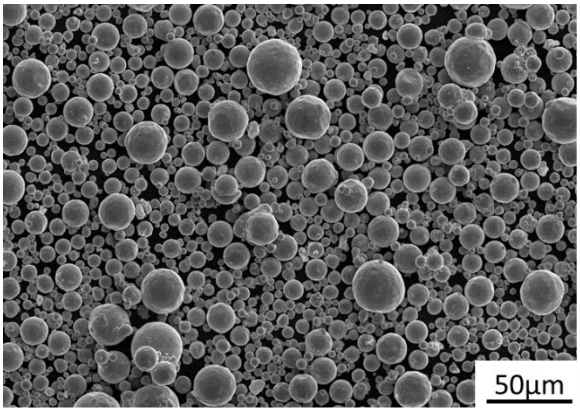
Alternative designation: UNS C18000 / ASTM B422 / DIN 2.0855 / CW111C / -

Description and general material properties

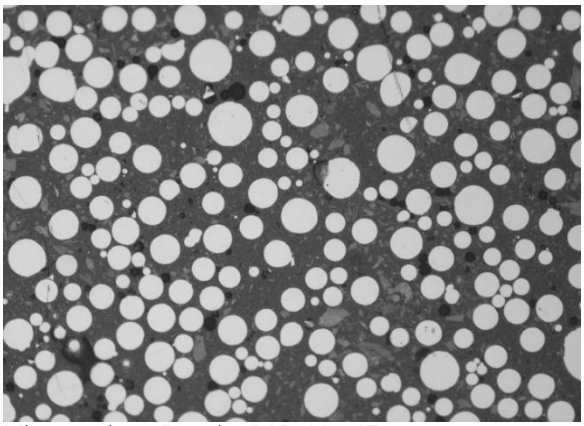
MET CuNi2SiCr is a thermally curable low-alloyed copper material with high stiffness, also at elevated temperatures. It offers good thermal and electrical conductivity, high corrosion resistance, and is well suited for wear and sliding applications.
The beryllium-free copper alloy is used for tooling, as mould insert, and for highly thermally stressed construction elements.



Scanning electron microscopy image of CuNi2SiCr powder (100x)



Scanning electron microscopy image of CuNi2SiCr powder (300x)



Microsection - Powder PSD: 20 – 63µm

Powder properties

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Ni	2,0	3,0
Si	0,5	0,8
Cr	0,2	0,5
Fe		0,15
Mn		0,1
Pb		0,02
Others total		0,1
Cu	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-63
Flow rate [s/50g][2]	15
Apparent density [g/cm³][3]	4,9

*exemplary values for PSD 20 - 63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

Technical Data Sheet
Datasheet_v0207 251020

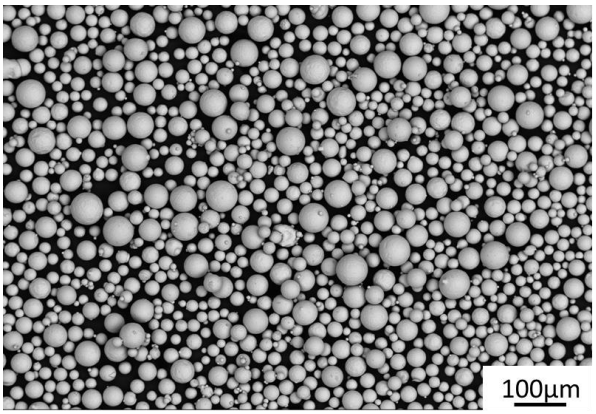
Copper Alloy: MET CuCr1Zr

overview - product table

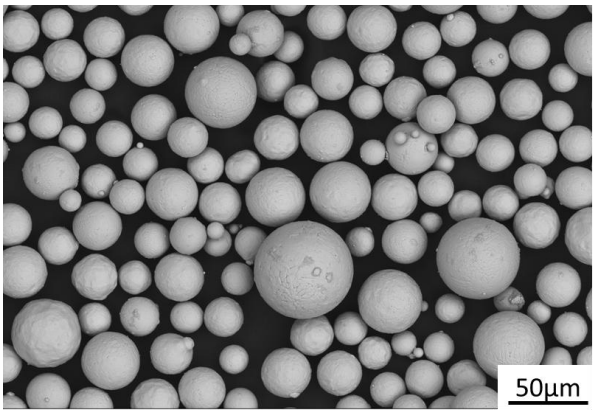
Alternative designation: UNS C18150 / ASTM B441, ASTM B534 / DIN 2.1293 / CW106C / RWMA Class 2

Description and general material properties

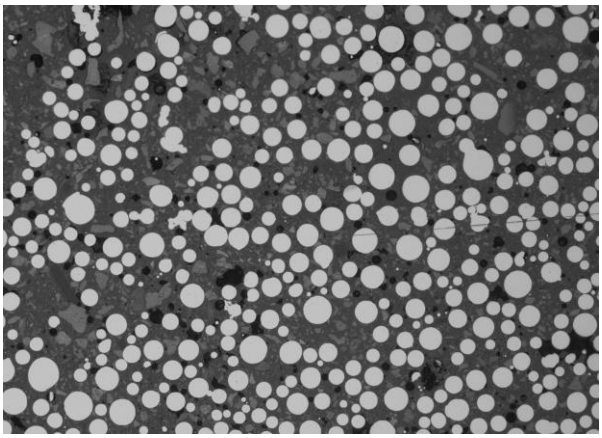
MET CuCr1Zr is a hardenable copper alloy that combines high strength and hardness with excellent thermal resistance. It offers good thermal and electrical conductivity and good wear resistance.
Typically, the alloy is used for machinery construction and electrical applications, mold cooling inserts, and high-performance applications in the aerospace or automotive industry.



Scanning electron microscopy image of CuCr1Zr powder (100x)



Scanning electron microscopy image of CuCr1Zr powder (300x)


Microsection - Powder PSD: 20 – 63µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Cr	0,5	1,2
Zr	0,03	0,3
Fe		0,08
Si		0,1
Others total		0,2
Cu	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-63
Flow rate [s/50g][2]	15
Apparent density [g/cm³][3]	4,9

*exemplary values for PSD 20 - 63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

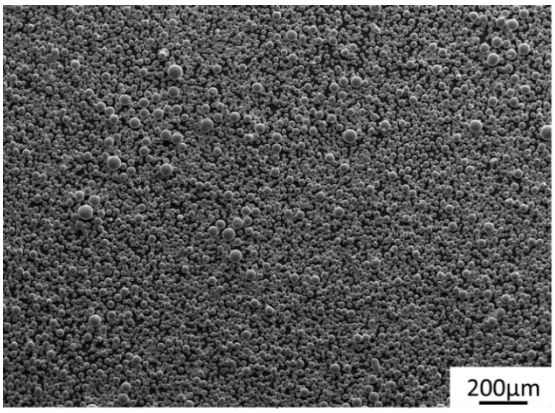
Copper Alloy: MET GRCop-42

overview - product table

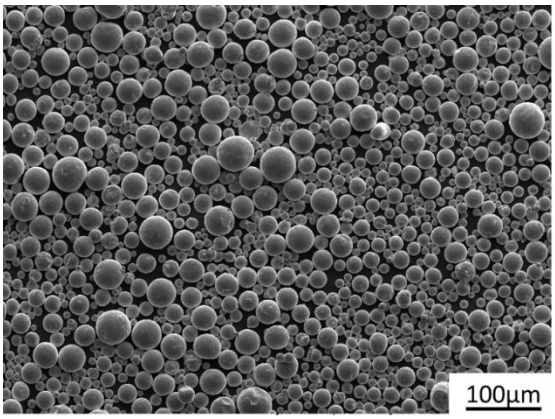
Alternative designation: NASA-Specific Alloy / GRCop-42 / Cu4Cr2Nb (at.%)

Description and general material properties

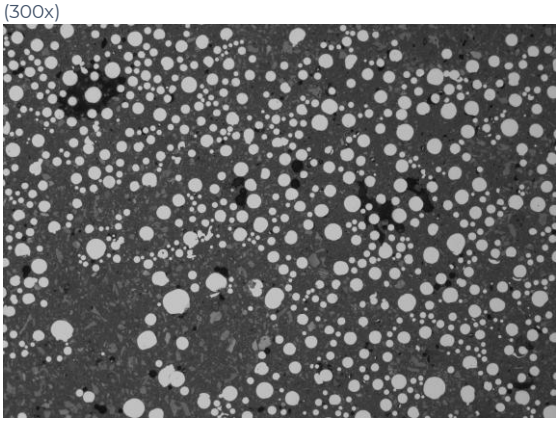
MET GRCop-42 is a dispersion-strengthened copper alloy with high strength and good resistivity against low cycle fatigue (LCF). With a conductivity reaching up to 75% of IACS, CuCrNb-alloys were initially designed for high heat flux applications, like combustion chambers and nozzles, and therefore offer high oxidation resistance in harsh environments.



Scanning electron microscopy image of GRCop-42 powder (137x)



Scanning electron microscopy image of GRCop-42 powder (300x)



Microsection - Powder PSD: 15 – 53µm

Powder characteristics

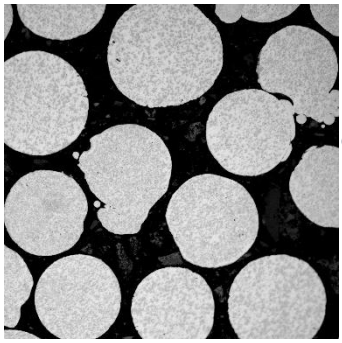
Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Cr	3,1	3,4
Nb	2,7	3,0*
O		0,04
Al		0,005
Fe		0,005
Si		0,005
Cu	Balance	Balance

* Cr/Nb ratio of 1,12-1,15

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-63
Flow rate [s/50g][2]	11
Apparent density [g/cm³][3]	5,0

*exemplary values for PSD 20 - 63 µm[4]

– values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11



Microsection of GRCop-42
PSD: 45-115µm

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

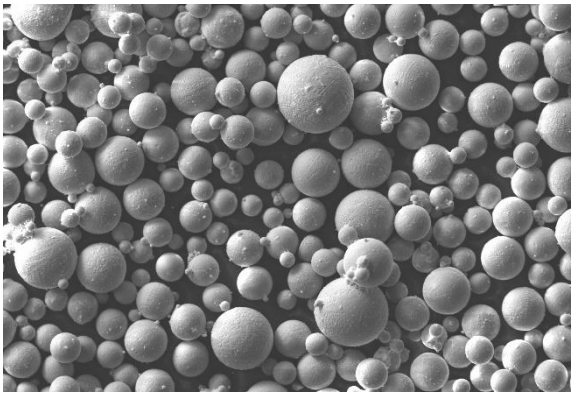
Copper Alloy: MET CuNi10

overview - product table

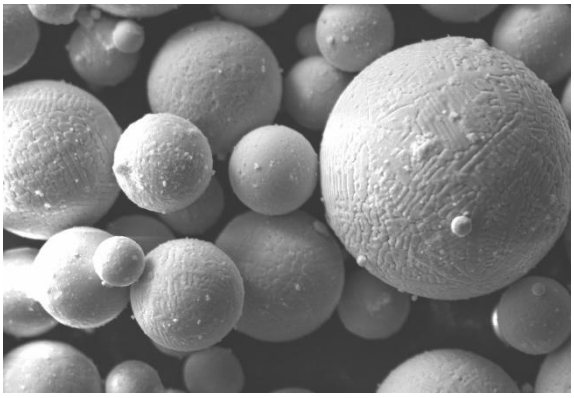
Alternative designation: UNS C70600 / ASTM B151, ASTM B122 / DIN 2.0872 / CW352H / CuNi 90/10

Description and general material properties

MET CuNi10 is a copper-nickel alloy with excellent corrosion resistance, particularly in seawater and marine environments, enhanced by iron and manganese. It offers high strength, good ductility, and biofouling resistance, making it ideal for shipbuilding, desalination, and heat exchangers. The alloy remains stable across temperatures, is easily weldable, and provides moderate thermal and electrical conductivity.



Scanning electron microscopy image of CuNi10 powder (300x)



Scanning electron microscopy image of CuNi10 powder (1.000x)

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Ni	9,5	10,5
Fe		1,8
Mn		1,0
Cu	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-63
Flow rate [s/50g][2]	15
Apparent density [g/cm³][3]	4,9

*exemplary values for PSD 20-63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

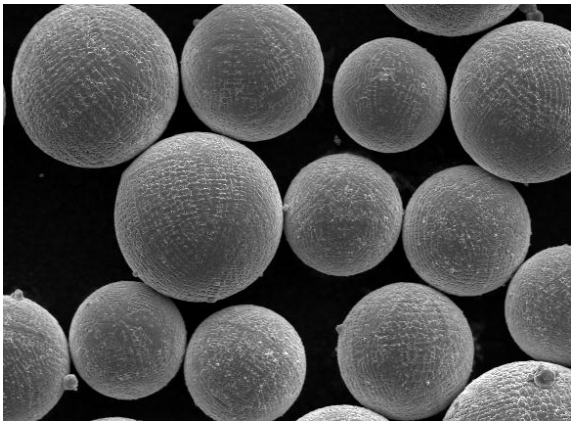
Copper Alloy: MET CuNi30

overview - product table

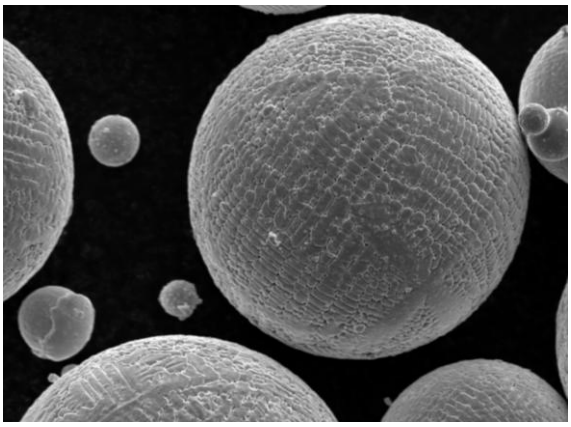
Alternative designation: UNS C71500 / ASTM B171, ASTM B466 / DIN 2.0882 / CW354H / CuNi 70/30

Description and general material properties

MET CuNi30Nb offers excellent corrosion resistance, rendering it a crucial material in marine, offshore, and chemical applications. As an additional alloy component Nb as a special alloy component further enhances its corrosion resistance. With mechanical properties reaching UTS 510 MPa and exceeding 20% elongation, the material is suitable for a wide range of applications. Even in environments from cryogenic temperatures up to 400°C the material demonstrates satisfactory performance.



Scanning electron microscopy image of CuNi30 powder (1.000x)



Scanning electron microscopy image of CuNi30 powder (3.000x)

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Ni	28,0	32,0
Nb	0,6	1,4
Fe	0,5	1,2
Mn	0,4	1,2
Si		0,5
C		0,1
Cu	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-63
Flow rate [s/50g][2]	15
Apparent density [g/cm³][3]	4,9

*exemplary values for PSD 20-63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

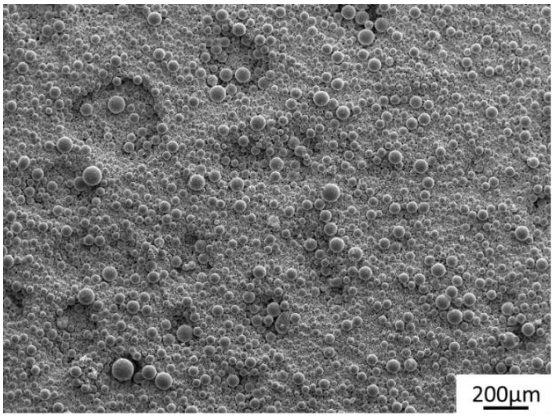
Stainless Steel: MET 1.4306

overview - product table

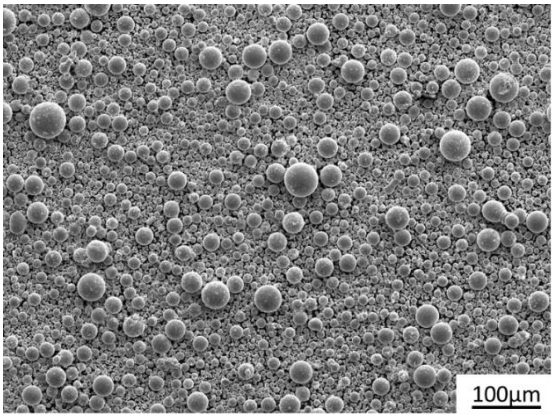
Alternative designation: UNS S30403 / ASTM A240, ASTM A276 / DIN 1.4306 / X2CrNi19-11 / AISI 304L

Description and general material properties

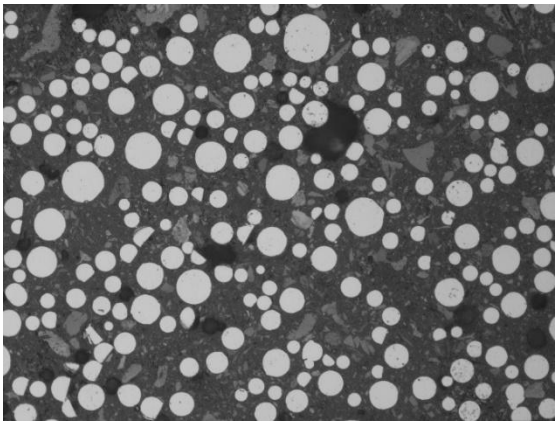
MET 304L is a stainless austenitic chromium-nickel steel with a low carbon content (<0,030%). The higher content of chromium and nickel results in increased corrosion resistance than 1.4301 or 1.4307
This steel is used mainly in the chemical and pharmaceutical industry; a high gloss surface finish can be achieved.



Scanning electron microscopy image of 304L powder (137x)



Scanning electron microscopy image of 304L powder (300x)


Microsection - Powder PSD: 15- 45µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Cr	16,5	18,0
Ni	10,0	15,0
Mo	2,0	2,5
Mn		2,0
Si		0,75
Cu		0,5
Others total		0,2
Fe	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	25
Apparent density [g/cm³][3]	4,4

*exemplary values for PSD 15 - 45 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

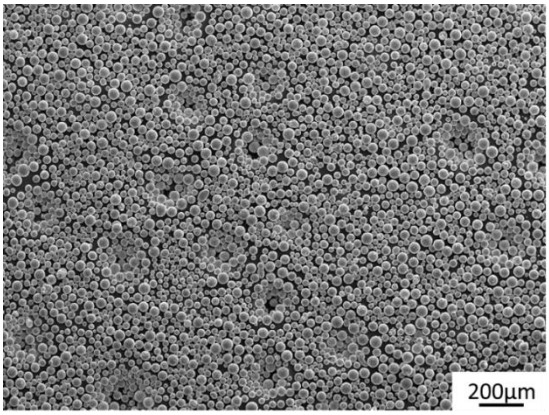
Stainless Steel: MET 1.4404

overview - product table

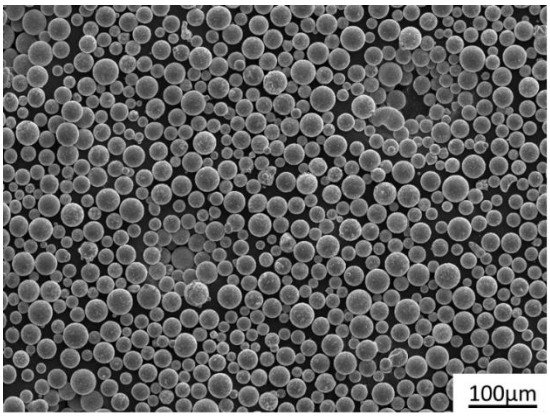
Alternative designation: UNS S31603 / ASTM A240, ASTM A276 / DIN 1.4404 / X2CrNiMo17-12-2 / AISI 316L

Description and general material properties

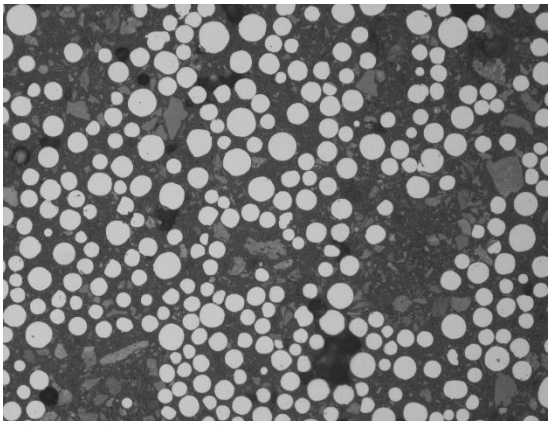
MET 316L is a stainless steel with low carbon content and good corrosion resistance.
It is commonly used in chemical and petrochemical industries, food processing, pharmaceutical equipment, medical devices, potable water, wastewater treatment, marine applications, and architectural applications near seashores or urban areas.



Scanning electron microscopy image of 316L powder (137x)



Scanning electron microscopy image of 316L powder (300x)


Microsection - Powder PSD: 15 – 45µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Cr	16,5	18,0
Ni	10,0	15,0
Mo	2,0	2,5
Mn		2,0
Si		0,75
Cu		0,5
Others total		0,2
Fe	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	25
Apparent density [g/cm³][3]	4.5

*exemplary values for PSD 15 - 45 µm[4]

– values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

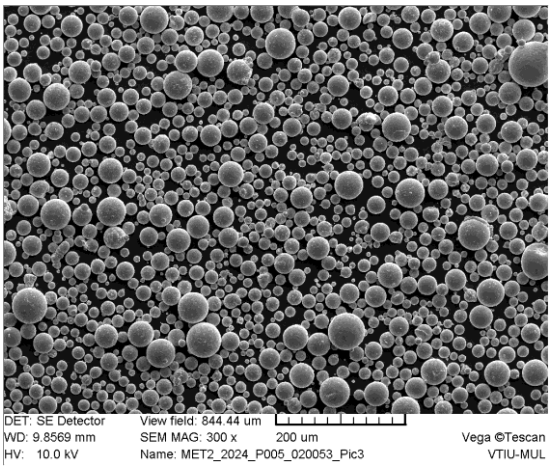
Stainless Steel: MET 1.4462

overview - product table

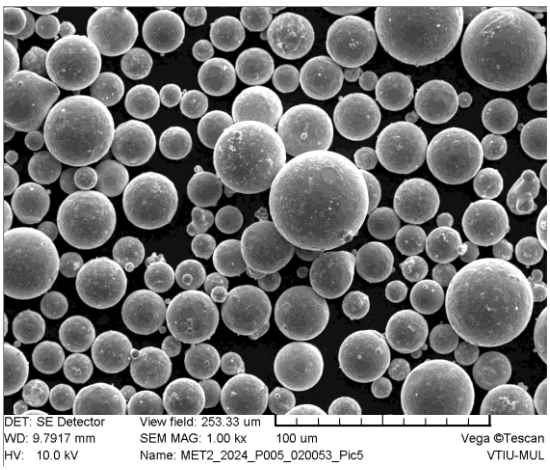
Alternative designation: 1.4462, UNS S31803 / S32205, ASTM A182, ASTM A240, ASTM A789, ASTM A790, EN X2CrNiMoN22-5-3, Duplex 2205, SAF 2205

Description and general material properties

A duplex stainless steel that provides greater resistance to stress corrosion cracking (SCC), pitting, and crevice corrosion than standard austenitic stainless steels (e.g., 316L). Additionally, it offers good weldability, high fatigue strength, and superior mechanical properties compared to conventional stainless steels. Due to its excellent resistance to seawater and industrial chemicals, 1.4462 is widely used in marine, chemical, and offshore applications.



Scanning electron microscopy image of 1.4462 powder (300x)



Scanning electron microscopy image of 1.4462 powder (1.000x)

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Cr	21,0	23,0
Ni	4,5	6,5
Mo	2,5	3,5
Mn		2,0
Si		1,0
N	0,1	0,22
C		0,03
P		0,035
S		0,015
Fe	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm]	15-53
Flow rate [s/50g][2]	20
Apparent density [g/cm³][3]	4,2

*exemplary values for PSD 20-53 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

Technical Data Sheet
Datasheet_v0207 251020

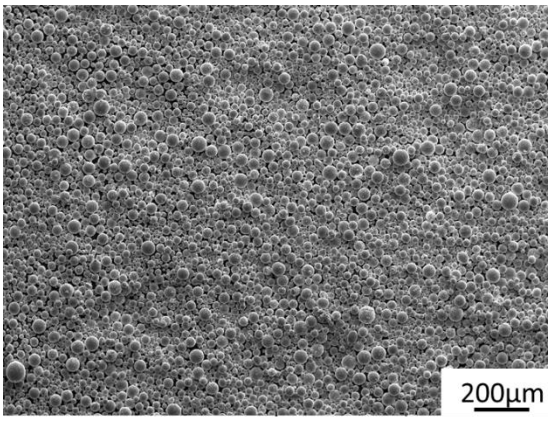
Nickel: MET Ni

overview - product table

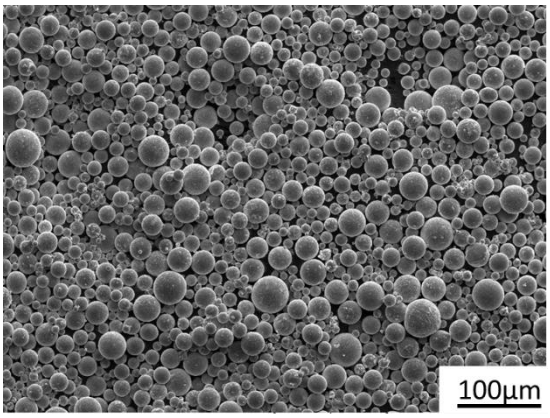
Alternative designation: UNS N02200 / ASTM B160, ASTM B162 / DIN 2.4066 (Ni 200) / NW2200 / Pure Nickel

Description and general material properties

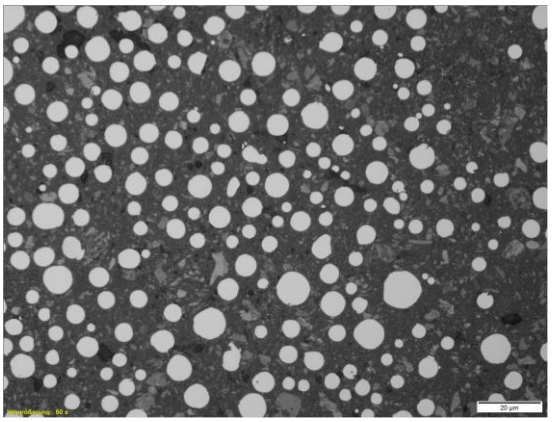
MET Ni is a highly thermal and electrically conductive material with outstanding corrosion resistance in extensive environments.
Typical applications are electrical, oil refining machinery, food processing industries, etc.



Scanning electron microscopy image of Nickel powder (137x)



Scanning electron microscopy image of Nickel powder (300x)


Microsection - Powder PSD: 15 – 45µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Ni	99.8	-
Cu		0.005
Fe		0.04
Mn		0.1
Si		0.04
C		0.02
S		0.002
O		0.02
Other		<0.1

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	11
Apparent density [g/cm³][3]	5,0

*exemplary values for PSD 15 - 45 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Important – please consider the “medical” note1 !

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

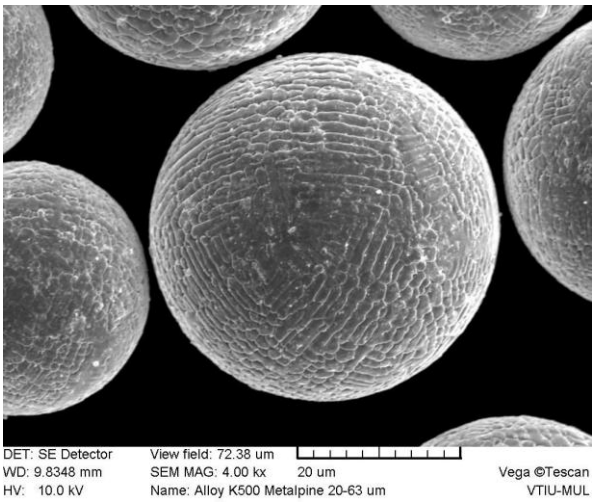
Nickel based: MET Alloy K500

overview - product table

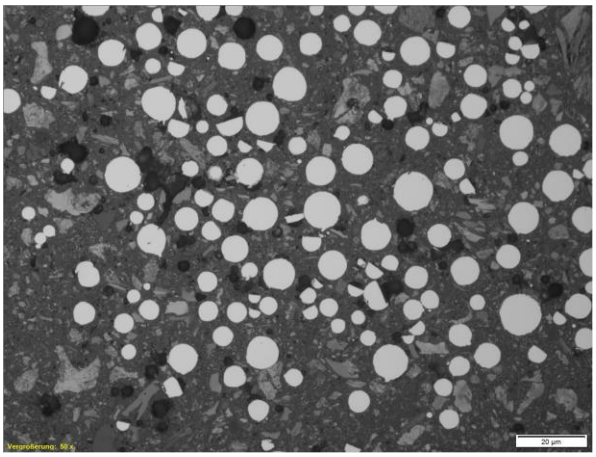
Alternative designation: UNS N05500 / ASTM B865 / DIN 2.4375 / NA18 / Monel K-500

Description and general material properties

MET Alloy K500 is a nickel-copper alloy with extreme hardness and high tensile strength in temperatures lower than 650°C (1.202°F). The melting point of this material is 1.350°C (2.462°F). Due to its excellent corrosion resistance, the alloy is well-suited for marine and chemical applications.
Typical applications are springs, shafts, and fasteners for marine propellers, oil handling equipment, knives, scrapers, or springs.



Scanning electron microscopy image of Alloy K500 powder (4.000x)



Microsection - Powder PSD: 20 – 63µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Ni	63,0	
Cu	27,0	34,0
Al	2,2	3,5
Fe	0,5	2,0
Ti	0,3	1,0
Mn		1,5
Co		1,0
Si		0,5
C		0,2
Others total		0,17

Powder characteristics	
Properties*	Value
Main PSD range [µm]	15-53
Flow rate [s/50g][2]	13
Apparent density [g/cm³][3]	4,7

*exemplary values for PSD 20 - 63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

Technical Data Sheet
Datasheet_v0207 251020

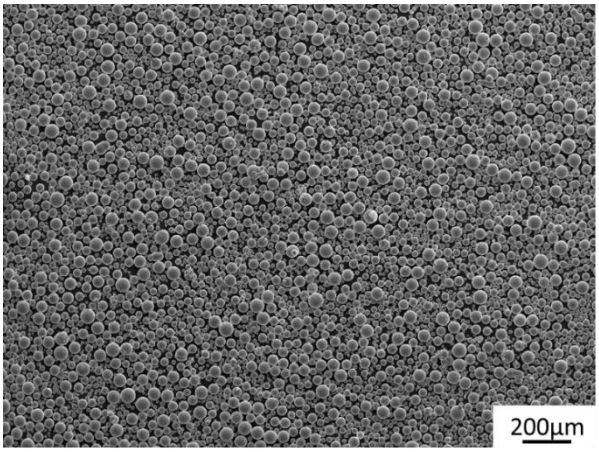
Nickel based: MET IN718

overview - product table

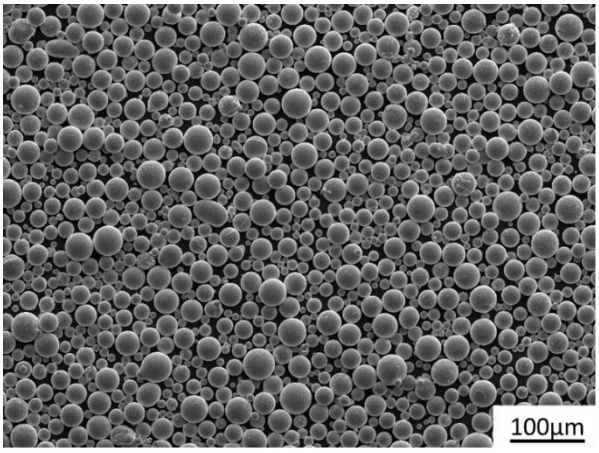
Alternative designation: UNS N07718 / ASTM B637, ASTM F3055 / DIN 2.4668 / NC19FeNb / Inconel 718

Description and general material properties

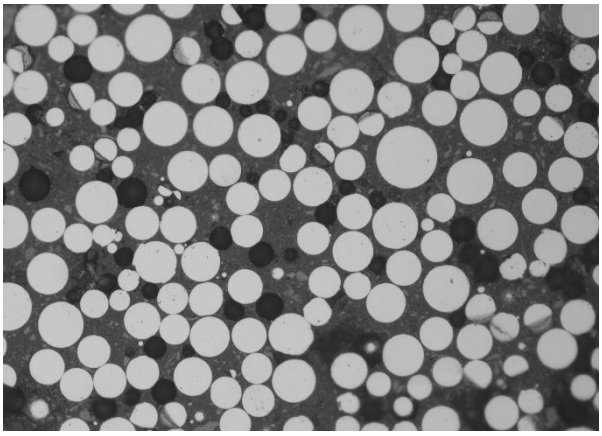
It's a high-strength, corrosion-resistant nickel chromium material used in a wide temperature range from cryogenic to high-temperature applications. In addition, its welding characteristics, especially its resistance to post-weld cracking, are outstanding. The ease and economy with which MET IN718 can be fabricated, combined with good tensile, fatigue, creep, and rupture strength, have resulted in its use in many applications. Like components for liquid-fueled rockets, rings, casings, various formed sheet metal parts for aircraft and land-based gas turbine engines, and cryogenic tankage. It is also used for fasteners and instrumentation parts.



Scanning electron microscopy image of IN718 powder (137x)



Scanning electron microscopy image of IN718 powder (300x)


Microsection - Powder PSD: 10 - 53µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Ni	50,0	55,0
Cr	17,0	21,0
Nb	4,75	5,5
Mo	2,8	3,3
Ti	0,65	1,15
Co		1,0
Al	0,2	0,8
Si		0,35
Mn		0,35
Others total		0,5
Fe	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	13
Apparent density [g/cm³][3]	4,7

*exemplary values for PSD 15 - 53 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

Technical Data Sheet
Datasheet_v0207 251020

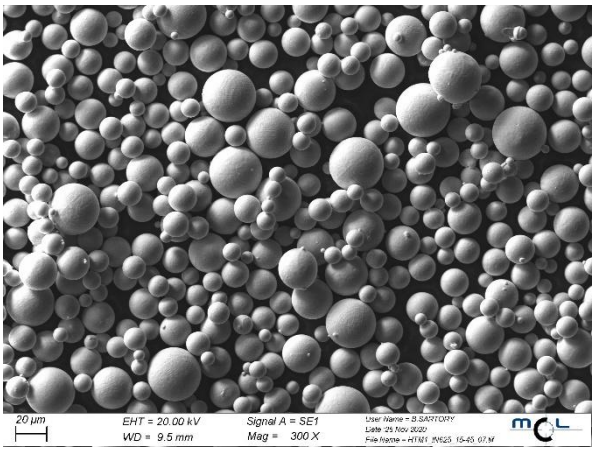
Nickel-based: MET IN625

overview - product table

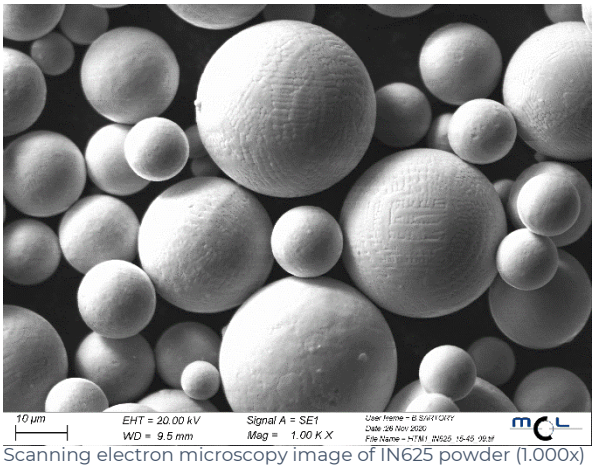
Alternative designation: UNS N06625 / ASTM B443, ASTM B446 / DIN 2.4856 / NC22DNB4 / Inconel 625

Description and general material properties

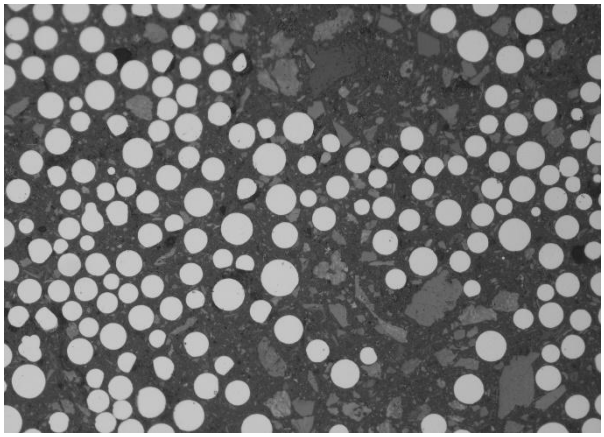
MET Inconel 625 is a nickel-based superalloy with high-strength properties and resistance to elevated temperatures. It also demonstrates excellent protection against corrosion and oxidation. Its ability to withstand high stress and a wide range of temperatures, both in and out of the water, and resist corrosion while exposed to highly acidic environments makes it a fitting choice for nuclear and marine applications.
Typical applications include seawater components, flare stacks, aircraft ducting systems, specialized seawater equipment, chemical process equipment, turbine shroud rings, engine thrust-reverser systems, and jet engine exhaust systems.



Scanning electron microscopy image of IN625 powder (300x)



Scanning electron microscopy image of IN625 powder (1.000x)


Microsection - Powder PSD: 15 – 45µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Cr	20,0	23,0
Mo	8,0	10,0
Nb	3,15	4,15
Fe		5,0
Co		1,0
Si		0,5
Mn		0,5
Others total		1,0
Ni	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	12
Apparent density [g/cm³][3]	4,8

*exemplary values for PSD 20 - 63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

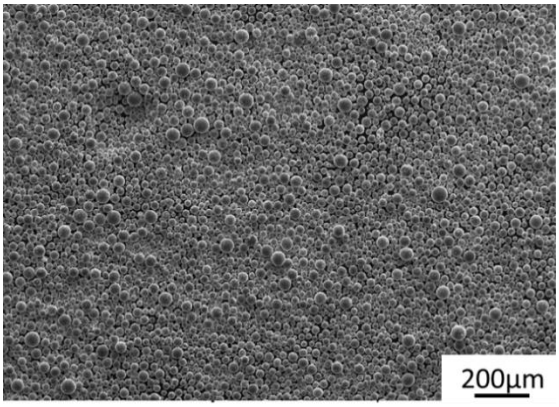
Titanium alloy: MET Ti Grade 5

overview - product table

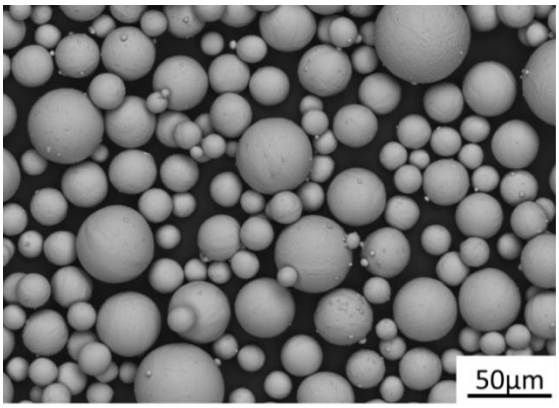
Alternative designation: UNS R56400 / ASTM B265, ASTM B348 / DIN 3.7165 / Ti64 / Ti-6Al-4V

Description and general material properties

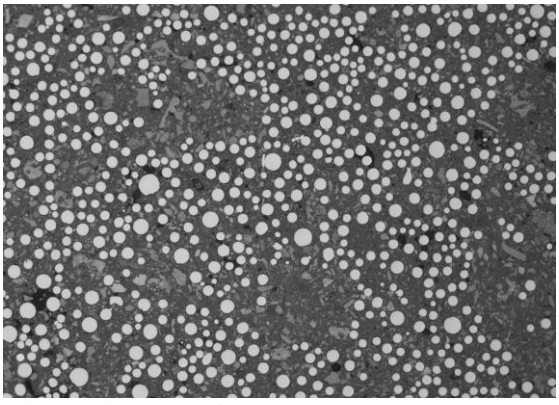
MET Ti6Al4V, or Grade 5 titanium, is the most used of all titanium alloys. Its usability lies in its many benefits. MET Ti6Al-4V may be heat treated to increase its strength. It can be used in welded construction at service temperatures of more than 300°C. This alloy offers its high strength at a light weight, useful formability, and high corrosion resistance.
MET Ti6Al-4V is used in many industries such as aerospace, medical, marine, and chemical processing industries, for example, in aircraft turbines, engine components, aircraft structural components, aerospace fasteners, high-performance automatic parts, marine applications, or even sports equipment.



Scanning electron microscopy image of Ti Grade 5 powder (139x)



Scanning electron microscopy image of Ti Grade 5 powder (300x)


Microsection - Powder PSD: 20 – 70µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Al	5,5	6,75
V	3,5	4,5
Fe		0,4
O		0,2
C		0,08
N		0,05
Ti	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm]	15-63
Flow rate [s/50g][2]	29
Apparent density [g/cm³][3]	2,4

*exemplary values for PSD 20 - 63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Important – please consider the “dual use” note2 !

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

Technical Data Sheet
Datasheet_v0207 251020

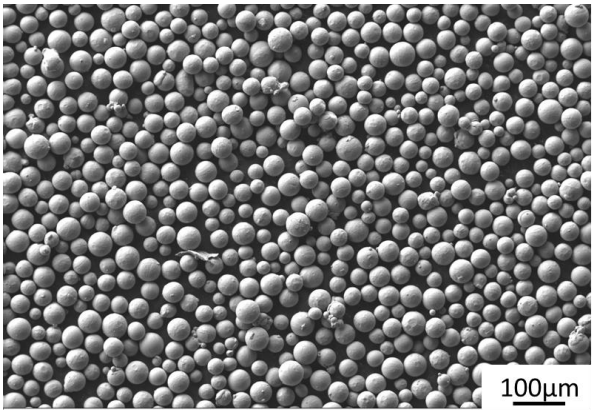
Titanium alloy: MET Ti Grade 23

overview - product table

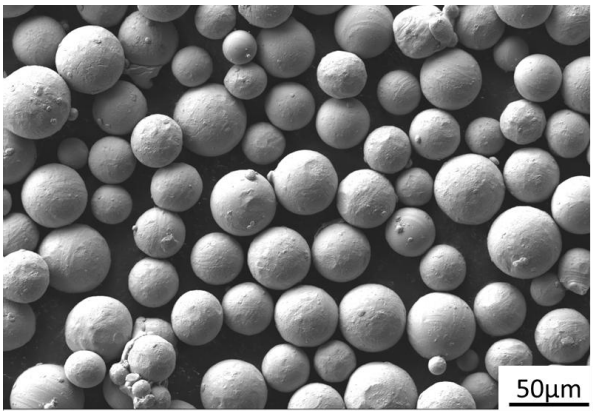
Alternative designation: UNS R56401 / ASTM F136 / DIN 3.7164 / Ti64 ELI / Ti-6Al-4V ELI

Description and general material properties

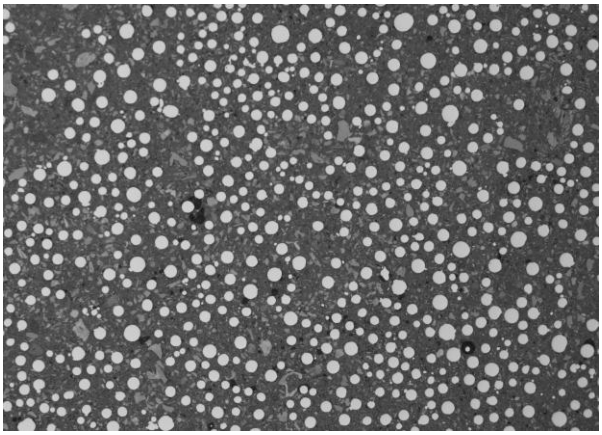
MET Ti6AL4V-ELI, or Grade 23 titanium, is the higher purity version of MET Ti6Al4V with excellent biocompatibility. It's the top choice for any situation where high strength, lightweight, good corrosion resistance, and high toughness are required. In addition, it has a superior damage tolerance to other alloys.
These benefits make MET Ti6AL4V-ELI the most requested titanium grade for dental and medical applications. Moreover, due to its biocompatibility, good fatigue strength, and low young's modulus, it can be used in biomedical applications or other surgical procedures such as implantable components.



Scanning electron microscopy image of Ti Grade 23 powder (100x)



Scanning electron microscopy image of Ti Grade 23 powder (300x)


Microsection - Powder PSD: 15 – 75µm

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Al	5,5	6,5
V	3,5	4,5
Fe		0,25
O		0,13
C		0,08
N		0,05
Ti	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-63
Flow rate [s/50g][2]	25
Apparent density [g/cm³][3]	2,4

*exemplary values for PSD 15 - 45 µm[4]
1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Important – please consider the "medical" note1 and "dual use" note2 !

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

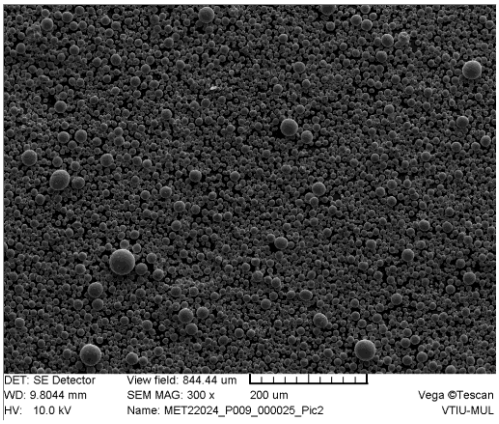
Titanium alloy: MET Ti Grade 2

overview - product table

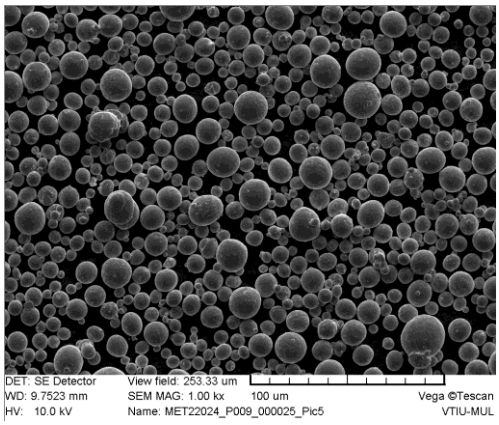
Alternative designation: UNS R50400 / ASTM B265, ASTM B348 / DIN 3.7035 / T40 / CP Titanium

Description and general material properties

MET Ti Grade 2, or Grade 2 titanium, is a commercially pure (CP) titanium alloy known for its excellent corrosion resistance, high strength-to-weight ratio, and good weldability. It is widely used in aerospace, chemical processing, marine, and medical applications due to its biocompatibility and durability. With moderate strength and superior ductility, Ti Grade 2 offers an optimal balance between mechanical performance and formability. Additionally, it exhibits excellent resistance to oxidizing and mildly reducing environments, making it ideal for harsh industrial conditions.



Scanning electron microscopy image of Ti Grade 2 powder, 0-25µm (300x)



Scanning electron microscopy image of Ti Grade 2 powder, 0-25µm (1000x)

Powder characteristics

Chemical composition[1]		
Element	Min [wt%]	Max [wt%]
Fe		0,30
O		0,25
C		0,08
N		0,03
H		0,015
Ti	Balance	Balance

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	30
Apparent density [g/cm³][3]	2,4

*exemplary values for PSD 15 - 45 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11

Important – please consider the “medical” note1 and “dual use” note2 !

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

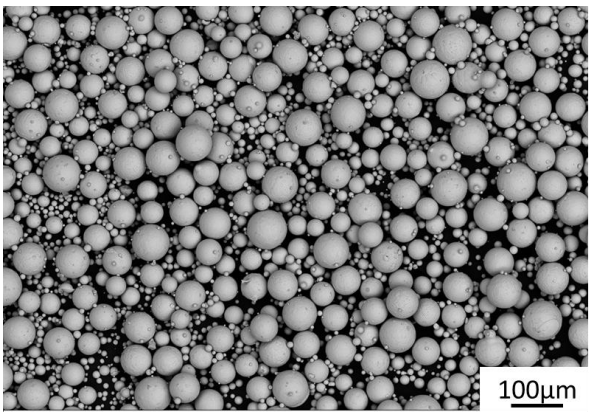
Molybdenum: MET Mo

overview - product table

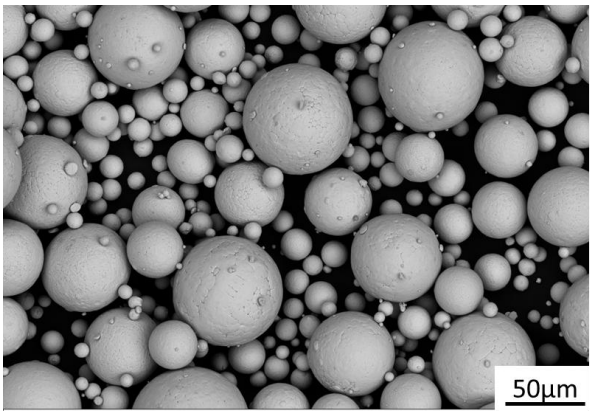
Alternative designation: UNS R03610 / ASTM B387 / DIN 2.0615 / Mo99%

Description and general material properties

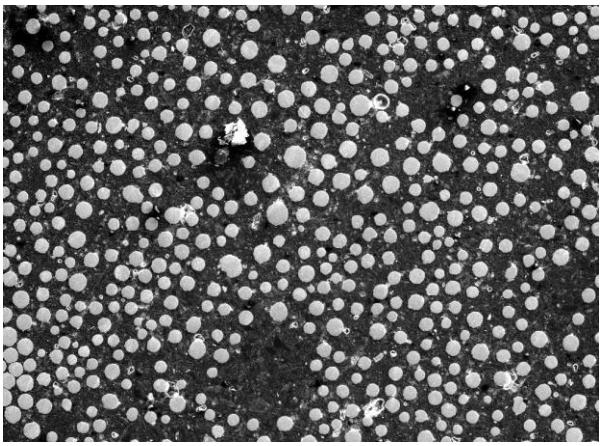
MET Mo 99% has one of the highest melting temperatures of all the elements (2.623°C), yet unlike most other high-melting-point metals, its density is only 25% greater than iron. As a result, its coefficient of thermal expansion is the lowest of the engineering materials, while its thermal conductivity exceeds all but a handful of elements. The operating temperature is up to 1.900°C.



Scanning electron microscopy image of Molybdenum powder (100x)



Scanning electron microscopy image of Molybdenum powder (300x)



Microsection - Powder PSD: 20-63µm

Powder characteristics

Chemical composition		
Element	Min [wt%]	Max [wt%]
Mo	99	

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	12
Apparent density [g/cm³][3]	5,1

*exemplary values for PSD 15 - 45 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11
Important – please consider the "dual use" note2

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.

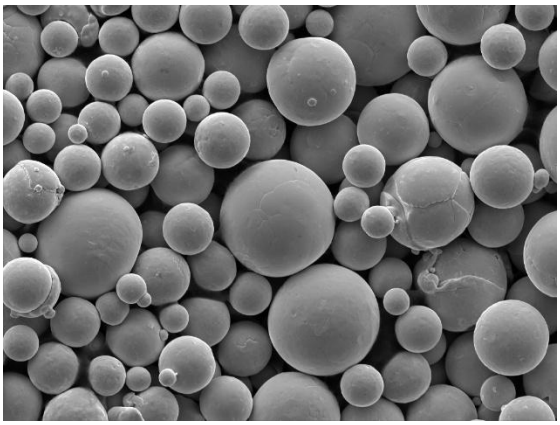
Niobium: MET Nb

overview - product table

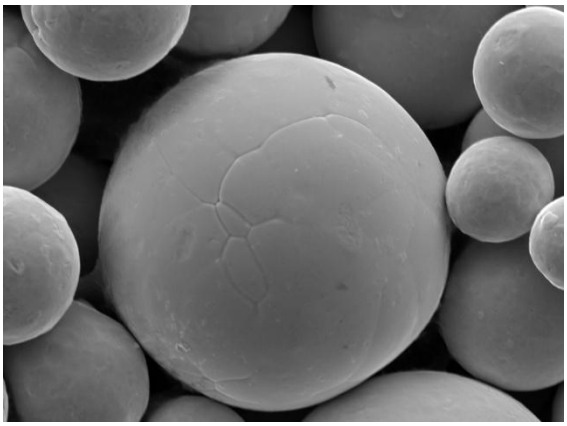
Alternative designation: UNS R04200 / ASTM B393 / DIN 2.4100 / Nb 99%

Description and general material properties

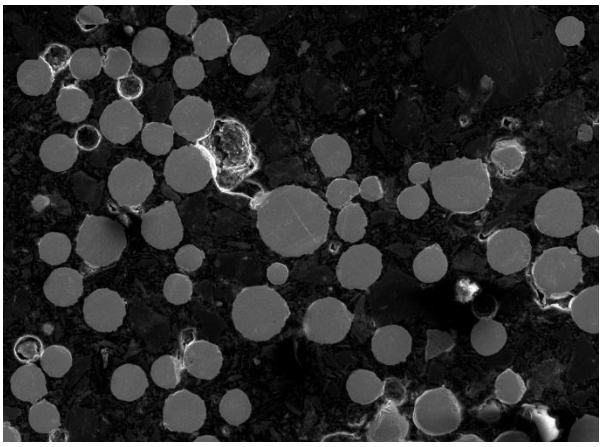
MET Nb 99,8% is a refractory metal known for its high melting point (2,477°C), excellent corrosion resistance, and superconducting properties. It is widely used in aerospace, nuclear, and superconducting applications due to its ability to withstand extreme temperatures and harsh environments. Niobium exhibits good ductility, weldability, and oxidation resistance, making it suitable for coatings, high-performance alloys, and medical implants. Its low neutron absorption cross-section also makes it valuable in nuclear reactors..



Scanning electron microscopy image of Niobium powder (1.000x)



Scanning electron microscopy image of Niobium powder (3.000x)



Microsection - Powder PSD: 20-63µm

Powder characteristics

Chemical composition		
Element	Min [wt%]	Max [wt%]
Nb	99	

Powder characteristics	
Properties*	Value
Main PSD range [µm}	15-53
Flow rate [s/50g][2]	-
Apparent density [g/cm³][3]	-

*exemplary values for PSD 20-63 µm[4]

1 – values taken from the powder material
2 – according to ASTM B213
3 – according to ASTM B212
4 – according to ASTM B214
5 – according to ISO 13322-2:2006-11
Important – please consider the “dual use” note2

Metalpine GmbH, Kratkystr. 2, 8020 Graz, Austria
M: +43 681 10756454 E: office@metalpine.at

go to Website:

The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. We always recommend the user to test our products on his own responsibility. Extensive research is ongoing, which is why Metalpine reserves the right to change the specification, information and data without notice.