High Melting Point
Spherical Metal Powders

UPDATED ON 2020-11

Base	Material Class	Name	Alt. Name	Material Propreties
Cu	Copper Alloys	**CuCr1Zr**	C18150	CuCr1Zr is a hardenable copper alloy, which combines high strength and hardness with a very low thermal resistance. It has good thermal and electrical conductivity.
		CuNi2SiCr	C18000	CuNi2SiCr has got even higher strength and hardness than CuCr1Zr at a slightly lower thermal and electrical conductivity.
		OF-Cu	C10200	High purity oxygen-free copper – highest thermal and electrical conductivity (>99,95% Cu)
Fe	Stainless and Tool Steels	**304L**	1.4306	Austenitic chromium-nickel steel with a low carbon content (<0,030%); better corrosion resistance than 1.4301 or 1.4307 due to higher chromium and nickel content.
		316L	1.4404	Austenitic chromium-nickel-molybdenum steel with a low carbon content (<0,030%); good resistance to chloric media and non-oxidizing acids
		17-4PH	1.4542	Martensitic chromium-nickel-copper stainless steel stabilized with Niobium. High strength and hardness due to precipitation hardening
		H11	1.2343/T20811	High-alloy hot-work steel with high toughness and heat resistance, hot cracks resistance and good thermal cnductivity
Ni	Nickel	**IN625**	2.4856	2.4856 is a low carbon nickel-chromium-molybdenum-niobium alloy. Service temperatures from cryogenic to 982°C; outstanding corrosion resistance
		IN718	2.4668	2.4668 is a nickel-chromium-iron alloy with niobium, molybdenum, aluminium and titanium; outstanding mechanical properties and corrosion resistance
Ti	Titanium Alloys	**Ti99.9**	Ti Grade 1	Unalloyed Titanium with low oxygen content; good corrosion resistance and biocompatibility
		Ti6Al4V	Ti Grade 5	Titanium-aluminium-vanadium alloy; best combination of strength, toughness and ductility; age-hardenable alloy, good biocompatibility
		Ti6Al4V- ELI	Ti Grade 23	"ELI" stands for "extra low interstitials" - lower oxygen and nitrogen content than Grade 5, used for medical and aerospace applications
Mo	Molybdenum	**Mo99.9%**	Mo99	High melting temperature (2623°C), low thermal expansion coefficient, operational temperature up to 1900°C

Other materials on request

Any metal or alloy can be atomized with our proprietary process, according to your needs. All products can be made in a narrow particle size distributions, e.g.

- <5µm
- 5-20µm
- 10–30µm
- 15–45µm
- 20– 63µm
- others on request

Product Data Sheet

Copper Alloy: CuCr1Zr

UPDATED ON 2020-11

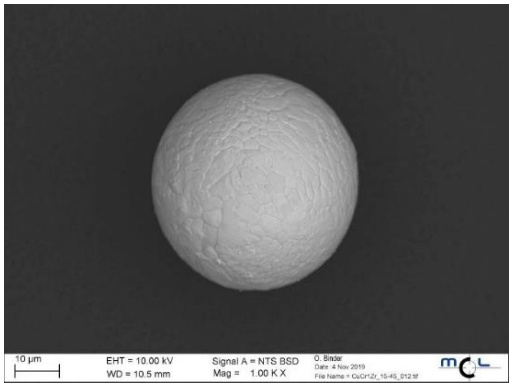
Alternative designation: C18150 or CW106C

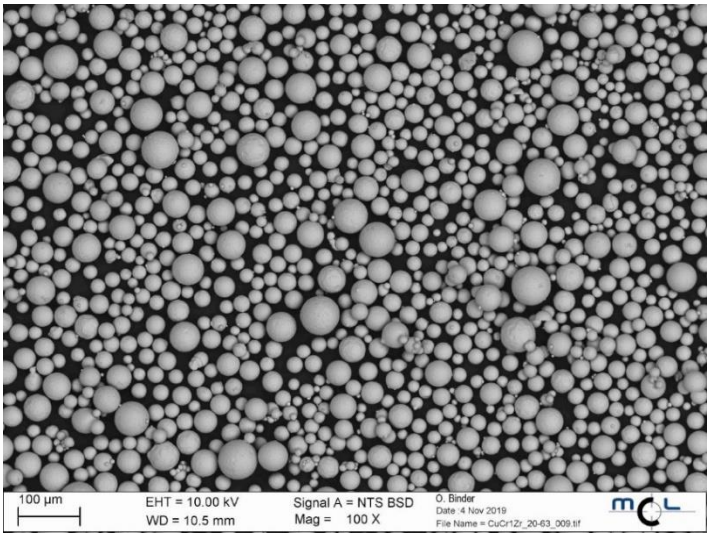
DESCRIPTION AND MATERIAL PROPERTIES

CuCr1Zr is a hardenable copper alloy, which combines high strength and hardness with good thermal and electrical conductivity. It is also characterized by a good wear resistance. This alloy retains its mechanical properties and good ductility within the temperature of 300-500°C. It is often used for machinery construction and electrical applications, mold cooling inserts, and high-performance applications in the aerospace or automotive industry.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Cr	0.5	1.2
Zr	0.03	0.3
Fe		0.08
Si		0.1
Other		0.2
Cu	Balance	Balance





Product Data Sheet

Copper Alloy: CuNi2SiCr

UPDATED ON 2020-11

Alternative designation: C18000 or CW111C

DESCRIPTION AND MATERIAL PROPERTIES

CuNi2SiCr is a thermally curable low-alloyed copper material with high stiffness, even at elevated temperatures. It has good thermal and electrical conductivity. This material has high corrosion resistance and is a good fit for high wear and sliding applications. CuNi2SiCr is often used for tooling, as mold insert and for highly thermally stressed construction elements. This copper alloy is free of beryllium.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Ni	2.0	3.0
Si	0.5	0.8
Cr	0.2	0.5
Fe		0.15
Mn		0.1
Pb		0.02
Other		0.01
Cu	Balance	Balance

Product Data Sheet

Copper Alloy: OF-Cu

UPDATED ON 2020-11

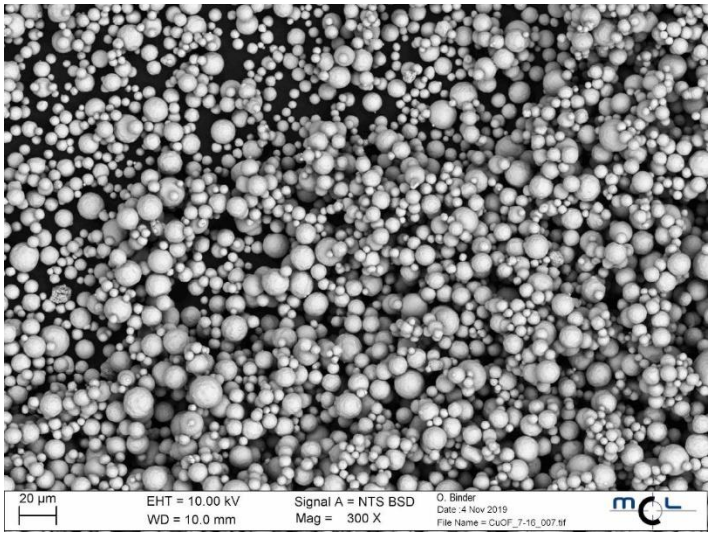
Alternative designation: C10200 or CW008A

DESCRIPTION AND MATERIAL PROPERTIES

OF-Cu is an extremely pure, oxygen free copper with minimum 99.95% Cu. It combines the advantages of both the Cu-ETP and the phosphor deoxidized copper materials. The high purity of the material combined with minimal oxygen inclusions, allows a 100% IACS (The International Annealed Copper Standard) electrical conductivity and ensures OF-Cu is not affected form hydrogen embrittlement. OF-Cu has a good formability, solderability and weldability, better than for Cu-ETP. Typical applications are in microelectronics and the telecommunication industries.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Pb		0.005
O		0.001
Bi		0.0005
Cu	99.95	Balance



Product Data Sheet

Stainless Steel: 304L

UPDATED ON 2020-11

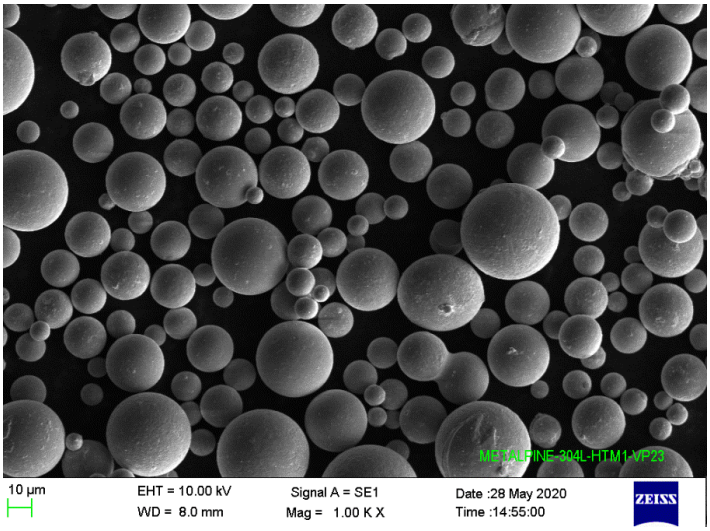
Alternative designation: 1.4306

DESCRIPTION AND MATERIAL PROPERTIES

304L is a stainless steel with a low carbon content and good corrosion resistance. This steel is heavily used in the chemical and pharmaceutical industries. A high gloss surface finish can be achieved.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Cr	18.0	20.0
Ni	10.0	11.0
C		0.03
Fe	Balance	Balance



Product Data Sheet

Stainless Steel: 316L

UPDATED ON 2020-11

Alternative designation: 1.4404

DESCRIPTION AND MATERIAL PROPERTIES

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

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Cr	17.0	19.0
Ni	13.0	15.0
Mo	2.25	3.0
C		0.003
Fe	Balance	Balance

Product Data Sheet

Stainless Steel: 17-4PH

UPDATED ON 2020-11

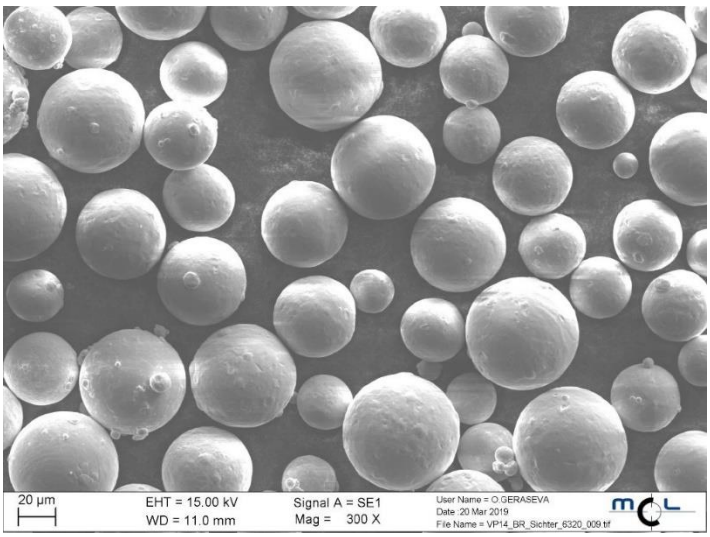
Alternative designation: 1.4542

DESCRIPTION AND MATERIAL PROPERTIES

17-4PH is a stainless steel with high yield strength, high wear resistance as well as good corrosion resistance. It can be used at low temperatures and has excellent impact strength even at temperatures under the freezing point. Due to the combination of corrosion resistance and good mechanical properties, this material is also suitable for use in maritime environments, whenever the corrosion resistance and mechanical properties of martensitic steels are insufficient. 17-4PH is regularly used in plant construction, chemical industry, wood industry, offshore applications, shipbuilding, mechanical engineering, oil industry, paper industry, air and water industry, aerospace applications, and sports and leisure industry.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Cr	15.0	17.0
Ni	3.0	5.0
Cu	3.0	5.0
Nb	0.15	0.45
Fe	Balance	Balance



Product Data Sheet

Tool Steel: H11

UPDATED ON 2020-11

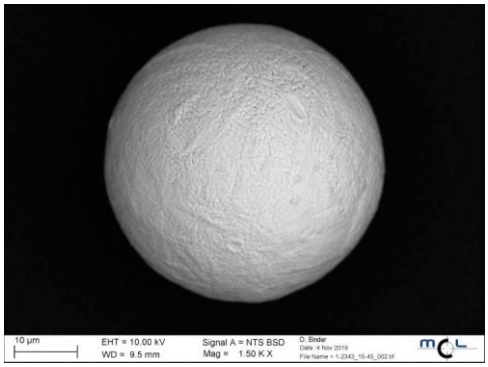
Alternative designation: 1.2343/T20811

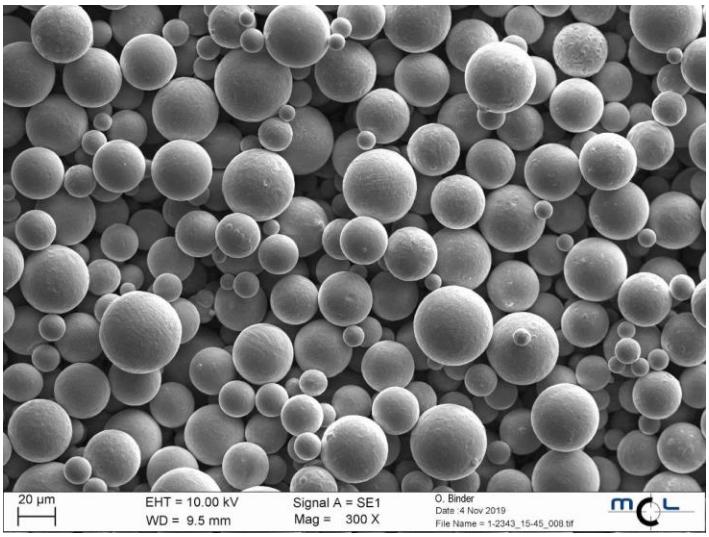
DESCRIPTION AND MATERIAL PROPERTIES

1.2343 is a hot work tool steel with high temperature strength, high wear resistance, and high thermal shock resistance. Good toughness and thermal conductivity. This material is often used for molds in the plastic industry, forging dies, forging tools, hot shear blades, hot extrusion tools, punches, screw tools, steel pins and ejector.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Cr	4.8	5.5
Mo	1.1	1.5
Si	0.8	1.2
C	0.33	0.41
V	0.3	0.5
Mn	0.25	0.5





Product Data Sheet

Nickel Based : IN625

UPDATED ON 2020-11

Alternative designation: 2.4856 or N06625

DESCRIPTION AND MATERIAL PROPERTIES

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

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Cr	20.0	23.0
Mo	8.0	10.0
Nb+Ta	3.15	4.15
Fe		5.0
Ni	Balance	Balance

Product Data Sheet

Nickel Based : IN718

UPDATED ON 2020-11

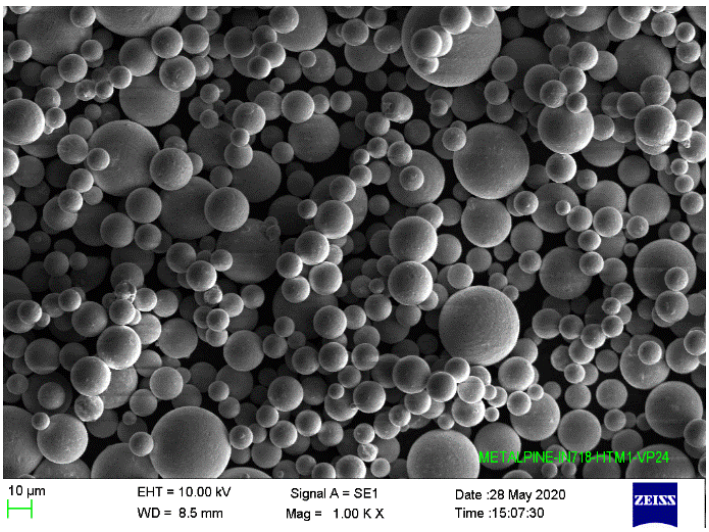
Alternative designation: 2.4668

DESCRIPTION AND MATERIAL PROPERTIES

Inconel 718 is a high-strength, corrosion-resistant nickel chromium material used in a wide temperature range from cryogenic to high temperature applications. This age-hardenable alloy can be readily machined, even into complex parts. Its welding characteristics, especially its resistance to post weld cracking, are outstanding. The ease and economy with which IN718 can be fabricated, combined with good tensile, fatigue, creep, and rupture strength properties, have resulted in its use in a wide range of applications. Examples of these are components for liquid fueled rockets, casings and various formed sheet metal parts for aircraft and land-based gas turbine engines, cryogenic tankage, fasteners and instrumentation parts.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
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
Al	0.2	0.8
Fe	Balance	Balance



Product Data Sheet

Titanium Alloy : Ti99.9

UPDATED ON 2020-11

Alternative designation: Ti Grade 1

DESCRIPTION AND MATERIAL PROPERTIES

Ti99.9 is the softest unalloyed grade of titanium with the lowest strength and highest ductility. It is weldable, has cold formability and is an impact-resistant alloy. Ti99.9 has good resistance to mildly reducing conditions and very good resistance to strong oxidizing environment with or without chlorides. The alloy is used for a variety of applications, including medical industry, marine and automotive industry, airframe structures, heat exchangers, chemical equipment, chlorine production, desalination and anode parts.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Ti	99.6	Balance
Other	Balance	0.4

Product Data Sheet

Titanium Alloy : Ti6Al4V

UPDATED ON 2020-11

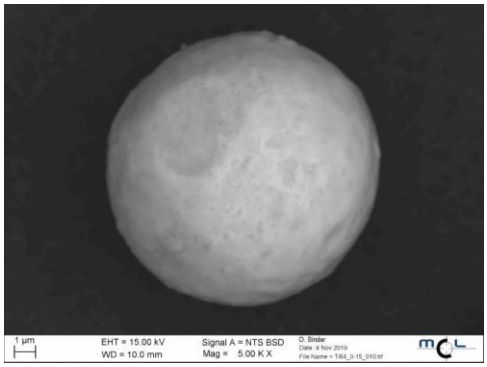
Alternative designation: Ti Grade 5 or Ti64

DESCRIPTION AND MATERIAL PROPERTIES

Ti6Al4V, or Grade 5 titanium, is the most commonly used titanium alloy. Ti 6Al-4V may be heat treated to increase its strength, and it can be used in welded construction at service temperatures of more than 300°C. This alloy offers high strength, light weight, useful formability and high corrosion resistance. Ti6Al4V is used in many industries including aerospace, medical, marine and chemical processing. It is frequently present in aircraft turbines, engine components, aircraft structural components, aerospace fastener, high-performance automatic parts, marine applications, and sports equipment.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
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



Product Data Sheet

Titanium Alloy : Ti6Al4V-ELI

UPDATED ON 2020-11

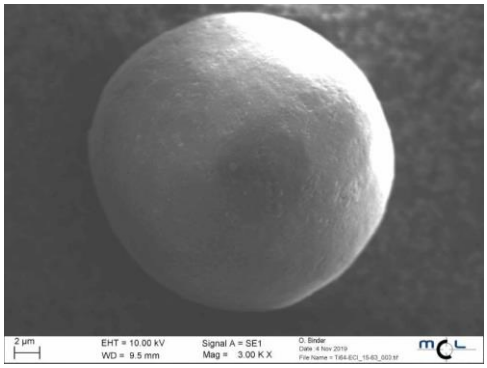
Alternative designation: Ti Grade 23 or Ti64-ELI

DESCRIPTION AND MATERIAL PROPERTIES

Ti6AL4V-ELI, or Grade 23, is the higher purity version of Ti6Al4V featuring a very good biocompatibility. It is a preferred choice for situations where a combination of high strength, light weight, good corrosion resistance and high toughness are required. It has a superior damage tolerance to other alloys. These benefits make Ti6AL4V-ELI the ultimate dental and medical titanium grade. It is often used in biomedical applications such as implantable components various surgical procedures due to its biocompatibility, good fatigue strength and low elastic modulus.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
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



Product Data Sheet

MOLYBDENUM: Mo 99.9%

UPDATED ON 2020-11

Alternative designation: Mo99

DESCRIPTION AND MATERIAL PROPERTIES

Mo99 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's. 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.

POWDER CHARACTERISTICS

Chemical Composition [wt.%]		
Element	Min	Max
Mo	99.95