



**CNPC POWDER**



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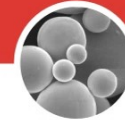
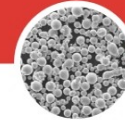
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# 3D PRINTING POWDERS

增材制造金属粉





# WHO WE ARE

## ■ 公司简介

CNPC POWDER has been focused on metal powder materials for many years and is establishing a new R&D center and production base for 3D printing metal powder materials in Anhui, China—Anhui CNPC Powder New Material Technology Ltd. The center will specialize in the development and production of Iron, Copper, Aluminum, Nickel, Cobalt, and Titanium based powders. As well as our stainless-steel powders. All these powders can operate in a wide variety of applications including 3D printing technology (SLS, SLM, EBM, LMD etc.), injection molding, powder metallurgy and other applications.



CNPC POWDER 数年专注于金属粉末材料，在安徽设立3D打印金属粉末材料的研发中心和生产基地—安徽中体新材料科技有限公司。产品包括铁基粉末、铝基粉末、镍基粉末、钴基粉末、钛基粉末、铜基粉末以及纯铁粉、铜粉、不锈钢粉等，能够满足多种3D打印技术（SLS、SLM、EBM、LMD等）以及注射成型、粉末冶金等方面的应用。

凭借行业多年经验积累，CNPC POWDER 在国际市场上拥有一定的知名度，与不少国际知名公司有长期合作关系。公司以市场为导向，依靠国内外先进技术，积极研发并改进生产技术，最大程度地降低粉末原料的成本，积极促进3D打印行业的产业化，增强中国产品的竞争性。

With more than 10 years' experience in the industry and a global presence, CNPC POWDER has developed a significant distinction in the international market and established solid and long-lasting relationships with many internationally recognized companies around the globe. Our company is market-oriented and actively developing and improving our production technology. We are dedicated to enhancing our competitiveness by minimizing the cost of powdered raw materials and actively promoting the industrialization of 3D printing industry.



Membership of EPMA  
欧洲粉末冶金协会会员



Membership of MPIF  
美国粉末冶金协会会员

# PRODUCTION PROCESS

## ■ 生产流程



ATOMIZATION  
雾化



DRYING  
干燥



HEAT TREATMENT  
热处理



SIEVING  
筛分



MIXING  
混合



PACKAGING  
包装

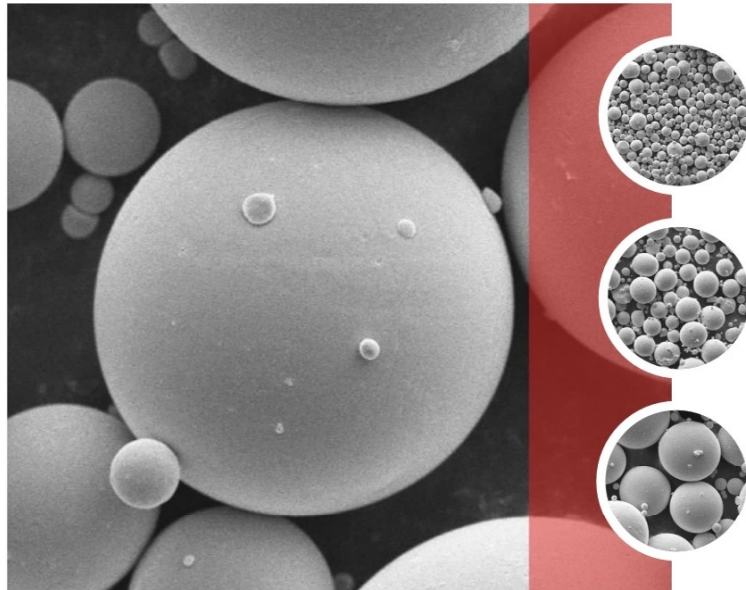


# PRODUCT CHARACTERISTICS

## 产品特性

- 我们以市场为导向，积极研发并改进生产技术
- Market-oriented and actively developing and improving our production technology
- 最大程度地降低粉末原料的成本
- Minimizing the cost of powdered raw materials
- 促进3D打印行业产业化
- Promoting the industrialization of 3D printing technology

Spherical shape particles	球形颗粒
Good flowability	良好的流动性
Particle size distribution tailored to the application and properties	按应用规格定制颗粒分布
Controlled chemical composition and low gas content	化学成分可控、低氧



# 3D PRINTING POWDERS

## 3D打印金属粉

CNPC POWDER has been working constantly and continuously to develop a new line of metal powders tailored for the 3D printing industry. All of our powders meet the high quality standards required for additive manufacturing & 3D printing.

为满足市场需求，CNPC POWDER积极开发了一系列高质量3D打印金属粉末，我们所有的粉末都符合增材制造和3D打印所需的高质量标准。

Iron based powders	Composition (%)	O (%)	A.D.g/cm <sup>3</sup>	Particle Size
CNPC-SS304L	Cr18-20, Ni8-12, C 0.03	0.05	3.5-5.0	0-15um, 15-45um,45-106um, D50 1-2um
CNPC-SS316L	Cr16-18, Ni10-14, Mo2-3,C 0.03			0-15um, 15-45um,45-106um, D50 1-2um
CNPC-SS17-4PH	Cr15.5-17.5, Ni3-5,Cu3-5,Nb0.15-0.45?			0-15um, 15-45um,45-106um, D50 1-2um
CNPC-18Ni300	Ni18-19, Mo 4.6-5.2, Co8.5-9.5, Ti 0.5-0.8			0-15um, 15-45um,45-106um
CNPC-H13	Cr 4.7-5.5, Mo 1.1-1.7, V 0.8-1.2 Si 0.8-1.2			0-15um, 15-45um,45-106um
CNPC-M2	Cr 3.8-4.4, Mo 4.5-5.5, W5.5-6.7, V 1.7-2.2			0-15um, 15-45um,45-106um

Aluminum based powders	Composition (%)	O (%)	A.D.g/cm <sup>3</sup>	Particle Size
CNPC-AISI10Mg	Si 9-11,Mg 0.3-0.5, Al Bal.	0.1	0.8 - 1.2	0-15um, 15-45um,20-60um, 45-106um
CNPC-AISI7Mg	Si 6-8,Mg 0.3-0.5, Al Bal.			0-15um, 15-45um, 20-60um, 45-106um
CNPC-AISI12	Si 11-13, Al Bal.			0-15um, 15-45um, 20-60um, 45-106um

Nickel based powders	Composition (%)	O (%)	A.D.g/cm <sup>3</sup>	Particle Size
CNPC-Inconel 718	Ni50-55,Cr17-21,Mo2.8-3.3,Nb+Ta4.75-5.5,	0.05	4.0-5.0	0-15um, 15-45um,45-106um
CNPC-Inconel 625	Cr20-23, Mo8-10			0-15um, 15-45um,45-106um
CNPC-Hastelloy X	Cr20.5-23, Mo8-10, Fe17-20			0-15um, 15-45um,45-106um
CNPC-Hastelloy C	Cr15-16.5, Mo1.5-1.7, Fe40,W3-4.5,Co1.5-2.5			0-15um, 15-45um,45-106um
CNPC-Invar36	Ni35-37,Fe Bal			0-15um, 15-45um,45-106um
CNPC-Kovar	Ni28.5-29.5, Co16.8-17.8, Fe BalCu3-5,			0-15um, 15-45um,45-106um

Cobalt based powders	Composition (%)	O (%)	A.D.g/cm <sup>3</sup>	Particle Size
CNPC-CoCrMo	Cr26-30, Mo4-6, W4-6, Co Bal	0.05	4.0-5.5	0-15um, 15-45um,45-106um
CNPC-CoCrW	Cr26-29, W7-9, Si1.2-1.9, Co Bal			0-15um, 15-45um,45-106um

Titanium based Powders	Composition (%)	O (%)	A.D.g/cm <sup>3</sup>	Particle Size
CNPC-TC4	Al5.5-6.5, V3.5-4.5, Ti Bal	1-1.5	0.5 - 1.0	0-15um, 15-45um,45-106um
CNPC-CPTI	Ti			0-15um, 15-45um,45-106um

Other Powders	Composition (%)	O (%)	A.D.g/cm <sup>3</sup>	Particle Size
CNPC-Sn	Sn 99.95	0.02-0.03	3.5-4.5	0-15um, 15-45um,45-106um
CNPC-Cu	Cu 99.5	0.1	4.4-5.5	0-15um, 15-45um,45-106um, D50 1-2um
CNPC-Ni	Ni 99.8	0.05-0.1	4.4-5.5	0-15um, 15-45um,45-106um, D50 1-2um
CNPC-SWC	WC 99.9	0.1	5.2-6.5	15-45um,45-106um,106-300um
CNPC-GCUSN10	CU90SN10	0.1	4.8-5.2	0-15um, 15-45um,45-106um
CNPC-Zn	Zn 99.5	0.05-0.1	3.0-3.8	0-15um, 15-45um,45-106um
CNPC-Ag	Ag 99.9	0.2-0.3	5.0-6.5	D50 2-4um D50 1-2um D50 0.5-1um



# QUALITY CONTROL

## ■ 质量管理

### Quality Control for Raw Materials | 原材料质量控制

- ◆ Selecting qualified raw material suppliers.
- ◆ Procurement of raw materials, such as nickel, titanium, cobalt, etc.
- ◆ Inspection of purchased material
- ◆ 选择合格的原材料供应商   ◆ 镍、钛、钴等原材料采购
- ◆ 采购物资检验



### Rigorous Process Control | 严格的过程控制

- ◆ Develop detailed process specification
- ◆ Performing process control procedures according to operating procedures
- ◆ Regular training operators.
- ◆ 制定详细的工艺规范           ◆ 按操作规程执行过程控制程序
- ◆ 定期培训操作人员



### Rigorous Process Inspection | 严格的过程检查

- |  |            |
|--|------------|
| ◆ Raw material inspection              | ◆ 原材料检验    |
| ◆ Furnace inspection                   | ◆ 炉检       |
| ◆ Gas Analysis                         | ◆ 气体分析     |
| ◆ Powder analysis                      | ◆ 粉末分析     |
| ◆ Gas analysis                         | ◆ 气体分析     |
| ◆ Non-metallic slag inclusion analysis | ◆ 非金属夹杂分析  |
| ◆ Third party inspection               | ◆ 第三方检验    |
| ◆ Identity management traceability     | ◆ 身份管理可追溯性 |



Test Screening Machine  
试验筛分机



Tap Density Tester  
振实密度测试仪



Laser particle size Instrument  
激光粒度仪



Apparent Density Tester  
表观密度测试仪

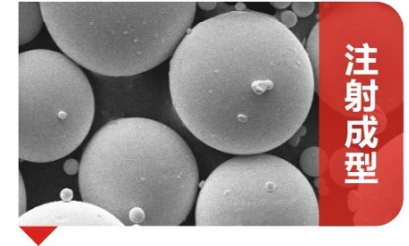


# APPLICATION

## ■ 应用领域



3D PRINTING



MIM



POWDER METALLURGY



DIAMOND TOOLS

Aerospace  
航空航天



Automation  
汽车



Machinery manufacturing  
机械制造



Mould manufacturing  
磨具制造

