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Fe-based Metal Powder

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Biodegradable metallic materials are of great interest for the use as temporary implant material in vascular intervention and osteosynthesis. The advantages of biodegradable materials are related to the reduction of long term risks associated with the presence of permanent metal implants, e.g. chronic inflammation and in-stent restenosis. In the last few years, iron-based alloys have been considered as potential biodegradable implant materials. Compared to magnesium alloys iron features similar biocompatibility, but a much more favorable combination of strength and ductility. This enables the fabrication of filigree structures which retain sufficient structural stability, and also allow versatile designs. Series of studies show indicate that the Fe-based alloy has high corrosion resistance and excellent biocompatibility, suggesting their promising potential as biomaterials. Efforts on the modification and tunability of iron-based alloys design and compositions have been mainly focused on controlling the degradation rate while retaining the mechanical integrity within a reasonable period. The early pre-clinical results of many iron-based alloys seem promising for future implants developments.

Beside biodegradable metallic materials, iron-based materials could be used as Fe-based metallic glasses, which could also be developed for biomedical implant application; iron-based nanoparticles have being extensively applied in the areas of imaging, targeting, drug delivery and biosensors, which unique properties such as low toxicity, biocompatibility, potent magnetic and catalytic behavior and superior role in multifunctional modalities have epitomized them as an appropriate candidate for biomedical applications; iron-based powder could also be used for Laser Metal Deposition(LMD), which subjected to high wear, replacing and bringing back to tolerance a coating that has suffered excessive erosion.

Most iron alloys are steels, with carbon as a major alloying element. Various chemical composition of iron alloys could have specific colors, delivery conditions, mechanical properties and so on, which could be used for specific purposes.

Matexcel provides multi-functional Fe-based materials, from fine powders to nanostructured forms. Welcome to contact us for more information, we aim to provide professional solution of metal powders to our customers.



Products List

Cat. NO.	Product Name	Components
MET-0001	M2 Stainless steel Powder	C 0.8-0.9; Si 0.15-0.4; Mn 0.2-0.45; Cr 3.8-4.4; Mo 4.5-5.5; V 1.75-2.2; W 5.5-6.75; Fe Bal.
MET-0002	InVar36 Stainless steel Powder	C <0.05; Si <0.4; Mn <0.6; Ni 36.0; Cr <0.25; Co <0.5; Al <0.1; Mg <0.1; Ti < 0.1; Zr <0.1; P < 0.015; S <0.015; Fe Bal.
MET-0003	440C Stainless steel Powder	C 0.95-1.2; Si <1.0; Mn <1.0; Ni <0.6; Cr 16.0-18.0; Mo <0.75; P <0.035; S <0.03
MET-0004	304 Stainless steel Powder	Mn ≤2.00; Ni 8.0-12.0; Cr 8.0-20.0; C ≤0.08; Si ≤1.00; P ≤0.045; S ≤0.03; O ≤0.05
MET-0005	316L Stainless steel Powder	Cr 16.0-18.0; Ni 10.0-14.0; Mo 2.0-3.0; Mn ≤2.00; Fe Bal; Si ≤1.00; P ≤0.04; S ≤0.03; C ≤0.03; O ≤0.05
MET-0006	S301 Stainless steel Powder	Ni 6.0-8.0; Cr 16.0-18.0; Fe Bal; C 0.15; Si 1.0; Mn 2.0; P 0.045; S 0.03; N 0.1; O ≤0.05
MET-0007	S310 Stainless steel Powder	Ni 19.0-22.0; Cr 24.0-26.0; Fe Bal; C 0.08; Si 1.5; Mn 2.0; P 0.045; S 0.03; O ≤0.05
MET-0008	S220 Stainless steel Powder	Ni 4.5-6.5; Cr 22.0-23.0; Mo 3.0-3.5; Fe Bal; C 0.03; Si 1.0; Mn 2.0; P 0.03; S 0.02; N 0.14-0.2; O ≤0.05
MET-0009	GP1(17-4PH) Stainless steel Powder	Cr 15.00-17.50; Cu 3.00-5.00; Ni 3.00-5.00; Mn ≤1.0; Fe Bal; Nb 0.15-0.45; Si ≤1.0; Mo ≤0.50; C ≤0.07; O ≤0.05
MET-0010	PH1(15-5PH) Stainless steel Powder	Cr 14-15.5; N 3.5-5.5; Cu 2.5-4.5; Nb 0.15-0.45; Fe Bal; Mn ≤1.00; Si ≤1.00; C ≤0.07; P ≤0.04; S ≤0.03; O ≤0.05
MET-0011	2Cr13 Stainless steel Powder	Cr 12-14; C 0.16-0.25; Mn ≤1; N ≤0.6; Fe Bal; Si ≤1; P ≤0.035; S ≤0.03; O ≤0.05
MET-0012	18Ni300(Ms1) Stainless steel Powder	Ni 17.0-19.0; Co 8.5-9.5; Mo 4.5-5.2; Ti 0.6-0.8; Al 0.05-0.15; Cr ≤0.3; Fe Bal; Mn ≤0.1; Si ≤0.1; C ≤0.03; P ≤0.01; S ≤0.01; O ≤0.05
MET-0013	H13 Stainless steel Powder	Cr 4.75-5.50; Mo 1.10-1.75; V 0.80-1.20; Fe Bal; C 0.32-0.45; Si 0.8-1.20; Mn 0.20-0.50; P ≤0.030; S ≤0.03; O ≤0.05