Datasheet
Soft magnetic alloys

Osprey® Fe50Co0.2Si

Osprey® Fe50Co0.2Si is a soft-magnetic binary alloy of iron and cobalt which produces a higher magnetic saturation compared to Osprey® Fe27Co0.2Si and Osprey® Fe35Co0.2Si.

Powder designed for

Product description

Osprey® Fe50Co0.2Si is a soft-magnetic binary alloy of iron and cobalt which produces a higher magnetic saturation compared to Osprey® Fe27Co0.2Si and Osprey® Fe35Co0.2Si. The alloy is particularly suited for miniaturization. Osprey® Fe50Co0.2Si is an alloy of a similar type as Permendur® that has a 2% vanadium addition.

This powder has material properties that achieve typical values and exceed minimum values, according to MPIF Standard 35.

This metal powder is manufactured by Inert Gas Atomization (IGA), producing a powder with a spherical morphology which provides good flow characteristics and high packing density. In addition, the powder has a low oxygen content and low impurity levels, resulting in a metallurgically clean product with enhanced mechanical performance.

*Permendur® is a trademark owned by Standard Telephones and Cables Pty Ltd.

Chemical composition (nominal), %

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Fe	Bal.
C	≤0.01
Mn	≤0.25
Si	≤0.25
Cr	≤0.7
S	≤0.03
P	≤0.03
Co	50.0
Ni	≤0.7

Powder characteristics and morphology

Powder for Metal Injection Moulding (MIM)

Osprey® MIM powder has a spherical morphology, resulting in high packing density. This enables the manufacture of feedstocks with high powder loading, which not only minimizes binder costs but also reduces part shrinkage during debinding and sintering. Spherical powder also has excellent flow characteristics, resulting in reduced tool wear and consistent mould filling.

Osprey® MIM powder's low oxygen content allows better control of carbon and consistency during sintering. Low oxygen levels, together with high packing density, also facilitate faster sintering.

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Particle size distribution

Powder for Metal Injection Moulding (MIM)

Osprey® metal powder for Metal Injection Moulding (MIM) is available in a wide range of particle size distributions, from under 5 µm up to 38 µm. The table shows our standard particle size distributions for MIM powders.

Size (µm)	D10 (µm)	D50 (µm)	D90 (µm)
≤ 38	5.5	13.0	31.0
≤ 32	5.0	12.0	29.0
80% ≤ 22	4.5	11.5	27.0
90% ≤ 22	4.0	10.5	22.0
90% ≤ 16	3.5	8.0	16.0

*Particle size measurements performed using a Malvern laser particle size analyzer, typical D10, D50 and D90 provided.

Tailor-made particle size distributions are available on request.Contact us to discuss your specific requirements.

Testing

All Osprey® metal powders are supplied with a certificate of analysis containing information on the chemical composition and particle size distribution. Information on other powder characteristics is available upon request.

Packaging

A wide range of packaging options is available, from 5kgs plastic bottles to 250kg metal drums.

5 kg (11 lbs) Plastic bottles
6 kg (13 lbs) Plastic bottles
10 kg (22 lbs) Plastic bottles
20 kg (44 lbs) Metal cans
100 kg (220 lbs) Steel drums
150 kg (330 lbs) Steel drums
250 kg (551 lbs) Steel drums
All packaging materials are suitable for air, sea and road freight.

Contact us for more information and to discuss your packaging requirements.

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