

Datasheet

Tool and high-speed steel

Osprey[®] S2

Osprey[®] S2 is a shock-resisting steel typically used for hand tools.

UNS

T41902

ASTM, AISI

A681, S2

Powder designed for

- Metal Injection Moulding (MIM)



Product description

Osprey[®] S2 is a shock-resisting steel typically used for hand tools.

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.

Chemical composition (nominal), %

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| | |
|----|-----------|
| Fe | Bal. |
| C | 0.40-0.55 |
| Ni | 0.3 |
| Mo | 0.3-0.6 |
| Si | 0.9-1.2 |
| Mn | 0.3-0.5 |
| V | 0.5 |

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.

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 are available, from 1 kg (2.2 lb) to 200 kg (440 lb)*.

Contact our team who can support you with selecting the right packaging for your product and application.

*Some packaging options may not be available for all products due to international shipping regulations.