

Datasheet

Austenitic stainless steel

# Osprey® N-50

Osprey® N-50 is a nitrogen-strengthened stainless steel with good corrosion, wear and galling resistance.

UNS

S20910

Powder designed for

- Metal Injection Moulding (MIM)



## Product description

Osprey® N-50 is a nitrogen-strengthened stainless steel with good corrosion, wear and galling resistance. The alloy is typically used for automotive, oil/gas, chemical processing, nuclear and general-purpose applications. Osprey® N-50 is an alloy of the same type as Nitronic® 50\*.

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.

\*Nitronic® is a trademark owned by AK Steel Corporation.

## Chemical composition (nominal), %

Last updated: Jul 17, 2023 9:48 AM CET

Fe	Bal.
C	0.03-0.05
Cr	20.5-22.0
Ni	11.7-13.0
Mo	2.0-2.5
Si	0.2-0.6
Mn	4.0-5.5
S	≤0.015
P	≤0.040
Other	Ta ≤0.10, Ti ≤0.02, Sn ≤0.03, W ≤0.15, Cu ≤0.75

## 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.