

Material Product Data Sheet

MetcoAdd 939-A Nickel-Based Superalloy for Additive Manufacturing

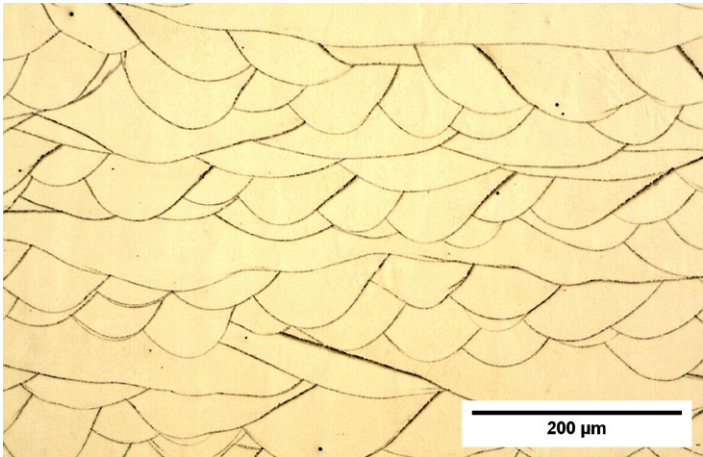
Powder Products:
MetcoAdd 939-A

1 Introduction

MetcoAdd™ 939-A is a Nickel-Chromium-Cobalt alloy exhibiting excellent high temperature creep, fatigue and tensile strength up to 850°C. It also provides a high corrosion and oxidation resistance. It has been optimized for crack free printing using PBF-LB and it can be heat treated to produce precipitation hardening.

1.1 Typical Uses and Applications

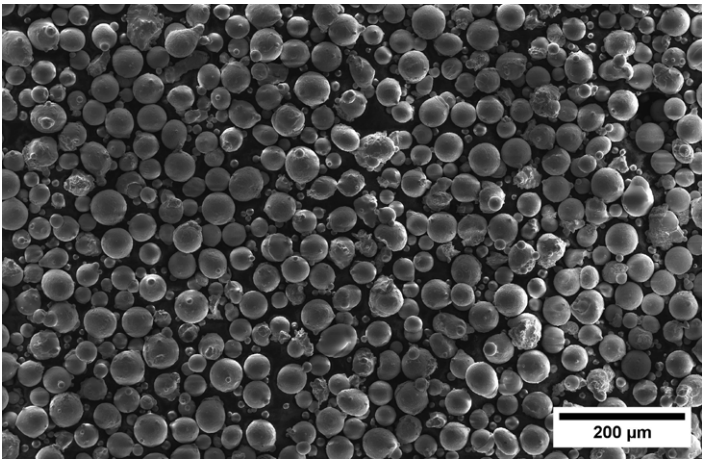
- Power Generation: Industrial Gas Turbine (IGT) components (i.e. Nozzle guide vanes, blades & heatshields)
- Oil & Gas: Valves and other components
- Industrial: Various



Printed crack free on EOS M290 with a 40 µm layer thickness at a 99.9% density. MetcoAdd 939-A can be treated to produce precipitation hardening.

Quick Facts

Classification	Superalloy, nickel-based
Chemistry	Ni 22Cr 19Co 3.7Ti 2W 2Al 2.4(Nb+Ta)
Manufacture	Inert gas atomized (Argon)
Morphology	Spherical
Apparent Density	> 4 g/cm ³
Solidus	1300 ± 10 °C (2374 ± 18 °F)
Liquidus	1343 ± 10 °C (2449 ± 18 °F)
Process	Laser Powder Bed Fusion (PBF-LB)



Typical spherical morphology of MetcoAdd 939-A gas-atomized powder

2 Material Information

2.1 Chemical Composition

Product	Weight Percent (nominal)								
	Ni	Cr	Co	Ti	W	Al	Ta+Nb	C	Other
MetcoAdd 939-A	Balance	22.4	19	3.7	2	2	2.4	0.15	< 0.1

2.2 Particle Size Distribution

Product	Nominal Range [µm]	D10 [µm]	D50 [µm]	D90 [µm]	Hall Flow (s/50 g)
MetcoAdd 939-A	-53 + 20	19	35	59	< 20

For the nominal range, particle size analysis 45 µm or above measured by sieve (ASTM B214), analysis below 45 µm by laser diffraction (ASTM C 1070, Microtrac). Fractional analysis (D90, D50, D10) by laser diffraction, Hall flow by ASTM B213.

2.3 Key Selection Criteria

- MetcoAdd 939-A has a chemical composition following typical casting compositions and has been optimized for PBF-LB applications.

2.4 Related Products

- Oerlikon Metco offers other nickel-based and iron-based powders designed for additive manufacturing that have been optimized for either powder fed or powder bed processes. Please contact your Oerlikon Metco Account Representative for more information.

2.5 Specifications

Product	Specifications (similar to)
MetcoAdd 939-A	UNS N06939

2.6 Additive Manufacturing Services

Oerlikon AM is an excellent source for pilot and production run additive manufacturing services and is ready to serve

your needs. Please contact your Oerlikon Metco account manager for more information or contact Oerlikon AM directly through their web site at www.oerlikon.com/am.

3 Commercial Information

3.1 Ordering Information and Availability

Product	Order No.	Package Size ^a	Availability	Distribution
MetcoAdd 939-A	2461585	5 kg (approx. 11 lb)	Stock	Global

^a Larger and/or custom packaging can be arranged for large volume users

3.2 Handling Recommendations

- Blend contents prior to use to prevent segregation
- Keep in the original container, or an approved alternative, tightly closed when not in use
- Powder from previously opened containers should be stored in a humidity-controlled environment

3.3 Safety Recommendations

See the SDS (Safety Data Sheet) in the version localized for the country where the material will be used. SDS are available from the Oerlikon web site at www.oerlikon.com/metco (Resources – Safety Data Sheets).

Product	SDS No.
MetcoAdd 939-A	50-4066

