MAR M 247 NICKEL SUPER ALLOY BINDER JETTING

COMPOSITION %

Al	5.4
B	0.012
C	0.13
Co	9.9
Cr	8.3
Hf	1.3
Mo	0.66
Ta	3.0
Ti	1.0
W	9.8
Zr	0.05
Ni	Bal.

	Standard	Post Processed Mar M 247 Sample
Ultimate tensile strength (MPa)	ASTM E8/E8M	**1391**
Yield strength (MPa)	ASTM E8M	**1070**
Elongation at break (%)	ASTM E8M	**13**

The post processed sample refers to the as-sintered Mar M 247 sample that has been subjected to an integrated HIP treatment + aging treatment process followed by a short aging process – Such a novel post treatment offers enhanced properties along with considerable cost savings in terms of reduction in process time

Stress Rupture Test of the post processed Mar M 247 sample vs As-cast Mar M 247

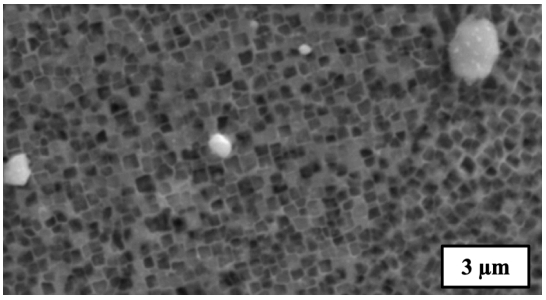
Heat treatment type, Aging treatment, Temp(C)Time(Hr)	Novel Post Processing	Target (Directionally solidified Mar M 247)
Test temperature (C)	760	760
Life Hours @ 90 KSI	26.9	–
Life Hours @ 100 KSI	5.9	–
Life Hours (total)	32.8	25.0
% Elongation	3.2	1.0
% Reduction Area	2.3	2.0

SURFACE ROUGHNESS (@ 50 µM LAYER THICKNESS)

Avg all surfaces (µm Ra) 4-6um

ATTRIBUTES & APPLICATIONS

- Excellent corrosion resistance
- High tensile & creep strength which remain stable at higher temperatures
- Ability to tailor microstructures through heat treatment
- High temperature applications in transportation, energy & industrial sectors



Microstructure of the post processed Mar M 247 sample showing a fine γ - γ' Eutectic which is crucial for tensile and creep strength

*Listed designations are for reference purposes only. Composition and mechanical properties may vary. End-use material performance is impacted (+/-) by certain factors including but not limited to part geometry and design, application and evaluation conditions, etc.

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