

Corrosion-resistant Alloy Powder for Additive Manufacturing

ADMUSTER® C series

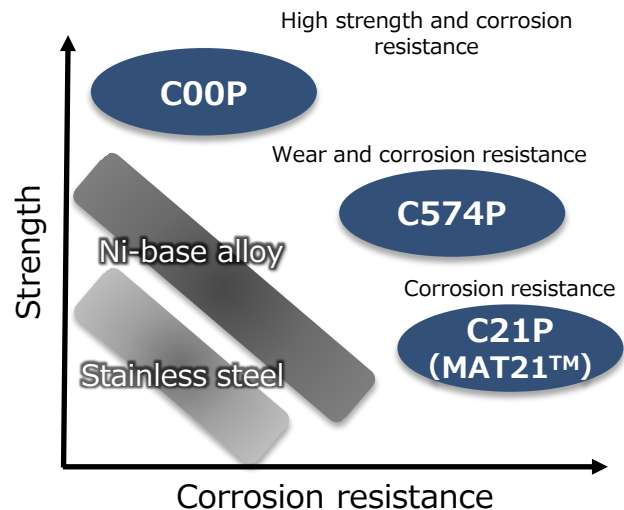


Summary

- Alloy series for additive manufacturing (AM) parts that are used in highly corrosive environments, such as plant equipment and in the resource field.

Features

- The AM process achieves superior mechanical properties to those of bulk materials.
- The lineup includes three alloys that match specific operating environments.
- We provide high-quality powders suitable for various AM processes.



Properties

SLM: Selective Laser Melting, EBM: Electron Beam Melting
LMD: Laser Metal Deposition, PTA: Plasma-Transferred Arc welding

	C00P	C574P	C21P
Alloy system	CoCrFeNiTiMo	Cr-base alloy	Ni-base alloy
Verified AM process	SLM, EBM, LMD	EBM, PTA	SLM, EBM, LMD
Tensile strength (RT)	★★★	★★	★
Wear resistance	★★	★★★	★
Corrosion resistance	★	★★	★★★
Application	High-strength structural parts	Mining	Chemical plants

Contact Information

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Please contact this Web. Site
<https://www.proterial.com>

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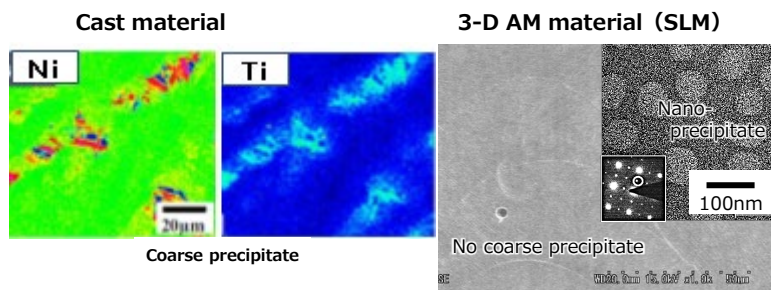


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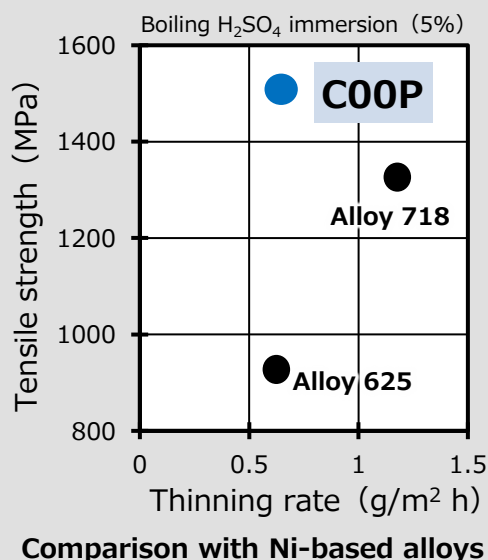
C00P

For structural components in plants used under heavy loads and in corrosive environments

- We apply multi-component alloy (CoCrFeNiTiMo), which is difficult to make using a melting method, to the structure by additive manufacturing.
- Combines high strength and corrosion resistance by a multi-component matrix and nano-precipitates.
- Material performances can be adjusted by heat treatment.



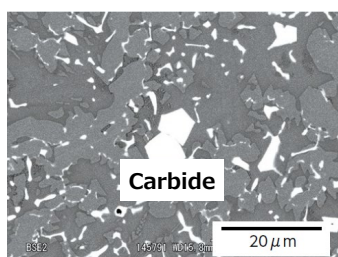
Microstructure control through additive manufacturing



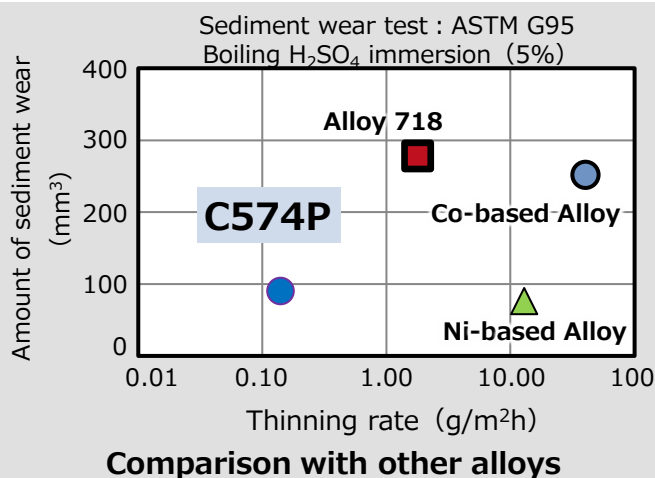
C574P

For mining equipment parts that require less maintenance work

- Hard particle dispersion-type alloy with excellent sediment wear resistance.
- Excellent corrosion resistance achieved by the Cr-based matrix.



Microstructure (PTA)



C21P

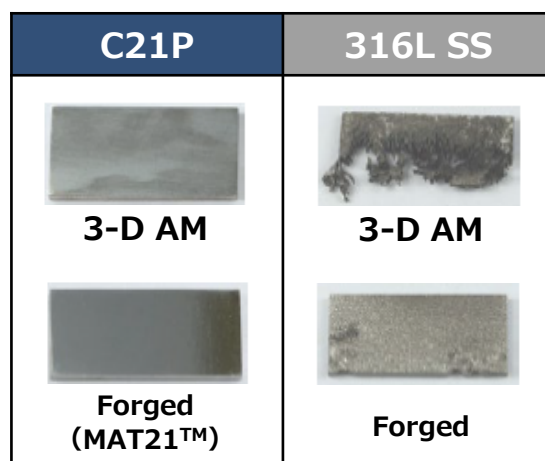
For various components used in corrosive environments, such as chemical plants

- Ni-based alloy has a proven track record of corrosion resistance in various environments among forged rolled materials.
- Molded material exhibits comparable corrosion resistance and superior mechanical properties to those of the corresponding forged rolled materials.

Results of various corrosion tests Unit: mm/yr

	Test conditions			
	HCl (10%)	H ₂ SO ₄ (40%)	HNO ₃ (65%)	CH ₃ COOH (99%)
MAT21™	3.1	0.3	16.5	0.006
MA22	9.6	1.9	1.3	0.001
MA276	4.8	1.7	23.0	< 0.01
316L SS	>300	>300	1.9	0.03

Remarks) All values in this table show the characteristics of forged materials, and do not guarantee the characteristics of the corrosion-resistant alloy powder for additive manufacturing.



Appearance after corrosion test (5% boiling HCl, 24 hours)