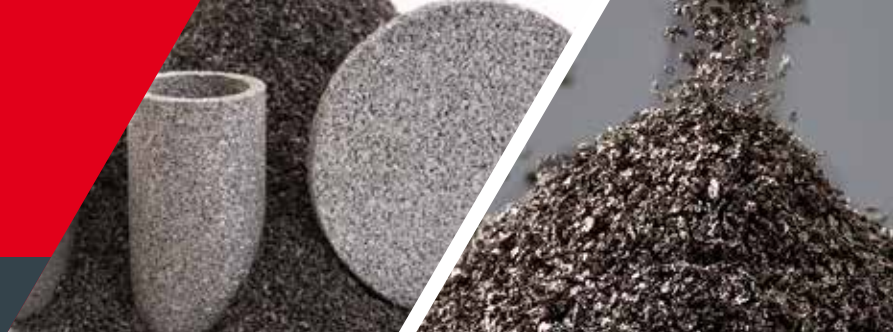


HASTELLOY® C-22 POWDER

TECHNICAL DATASHEET



HASTELLOY® C-22 POWDER

AMETEK offers several different Hastelloy® alloys in powder form, including but not limited to C-22, C-276, B, and X alloys. They are nickel based and used in applications where the corrosion resistance or service temperature of stainless steels is insufficient.

HASTELLOY® C-22

Hastelloy® C-22 (UNS N06022) is a nickel-chromium-molybdenum-tungsten alloy with supreme overall corrosion resistance compared to all other Ni-Cr-Mo alloys.

It is used in environments that demand maximum corrosion resistance including the Chemical Processing Industry (CPI) and Oil and Gas (O&G). Our C-22 powders are used to create Filters for these markets, to apply coatings by thermal spray and cladding processes, and to make sintered parts.

Its key properties include excellent protection against chloride-induced pitting, crevice attack, stress corrosion cracking and resistance to oxidizing and non-oxidizing media.

The high chromium content ensures higher resistance to oxidizing chemicals than the family standard, C-276 alloy. It possesses outstanding resistance to chloride-induced pitting and performs exceptionally in severe environments including wet chlorine, formic and acetic acids, ferric and cupric chlorides, sea water and many mixed or contaminated chemical solutions.

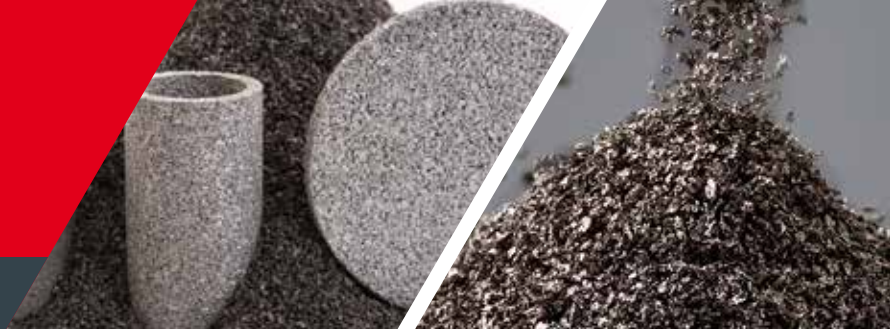
C-22 is ductile with very good weldability and is easily engineered into industrial parts.

CHEMICAL COMPOSITION %

Alloy	Ni	Co	Cr	Mo	Fe	W	Mn	V	Si	C	Cu	Nb	B	Al	Ti	Ta	Zr
C-22	56 bal	2.5 max	22	13	3	3	0.5 max	0.35 max	0.08 max	0.01 max	0.5 max	-	-	-	-	-	-

HASTELLOY® C-22 POWDER

TECHNICAL DATASHEET



HASTELLOY® C-22 BULK PROPERTIES

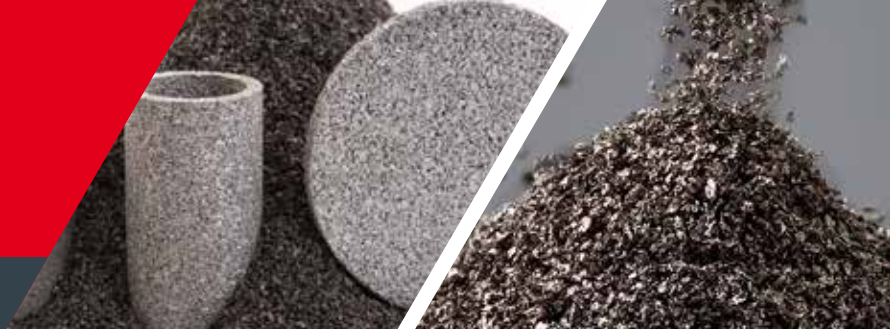
PHYSICAL PROPERTIES				
Physical Property	Imperial units		Metric Units	
Density	RT	0.314 lb/in ³	RT	8.69 g/cm ³
Electrical Resistivity	RT	44.9 μohm.in	RT	1.14 μohm.m
	200°F	48.0 μohm.in	100°C	1.23 μohm.m
	400°F	48.8 μohm.in	200°C	1.24 μohm.m
	600°F	49.3 μohm.in	300°C	1.25 μohm.m
	800°F	49.7 μohm.in	400°C	1.26 μohm.m
	1000°F	50.1 μohm.in	500°C	1.27 μohm.m
	-	-	600°C	1.28 μohm.m
Thermal Conductivity	100°F	69 Btu.in/h.ft ² .°F	50°C	10.1 W/m.°C
	200°F	76 Btu.in/h.ft ² .°F	100°C	11.1 W/m.°C
	400°F	94 Btu.in/h.ft ² .°F	200°C	13.4 W/m.°C
	600°F	110 Btu.in/h.ft ² .°F	300°C	15.5 W/m.°C
	800°F	125 Btu.in/h.ft ² .°F	400°C	17.5 W/m.°C
	1000°F	139 Btu.in/h.ft ² .°F	500°C	19.5 W/m.°C
	-	-	600°C	21.3 W/m.°C

RT = Room Temperature

Data shown for Physical Properties sourced from Haynes International, Inc.

HASTELLOY® C-22 POWDER

TECHNICAL DATASHEET



HASTELLOY® C-22 BULK PROPERTIES (CONTINUED)

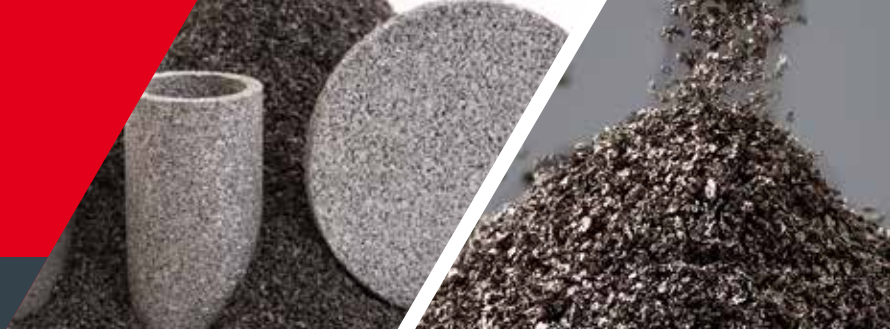
PHYSICAL PROPERTIES				
Physical Property	Imperial units		Metric Units	
Thermal Diffusivity	RT	0.004 in ² /s	RT	0.027 cm ² /s
	200°F	0.005 in ² /s	100°C	0.030 cm ² /s
	400°F	0.005 in ² /s	200°C	0.035 cm ² /s
	600°F	0.006 in ² /s	300°C	0.039 cm ² /s
	800°F	0.007 in ² /s	400°C	0.042 cm ² /s
	1000°F	0.007 in ² /s	500°C	0.046 cm ² /s
	-	-	600°C	0.048 cm ² /s
Mean Coefficient of Thermal Expansion	75 - 200°F	6.9 μin/in.°F	24 - 100°C	12.4 μm/m.°C
	75 - 400°F	6.9 μin/in.°F	24 - 200°C	12.4 μm/m.°C
	75 - 600°F	7.0 μin/in.°F	24 - 300°C	12.6 μm/m.°C
	75 - 800°F	7.4 μin/in.°F	24 - 400°C	13.1 μm/m.°C
	75 - 1000°F	7.7 μin/in.°F	24 - 500°C	13.7 μm/m.°C
	75 - 1200°F	8.1 μin/in.°F	24 - 600°C	14.3 μm/m.°C
	75 - 1400°F	8.5 μin/in.°F	24 - 700°C	14.9 μm/m.°C
	75 - 1600°F	8.8 μin/in.°F	24 - 800°C	15.5 μm/m.°C
	75 - 1800°F	9.0 μin/in.°F	24 - 900°C	15.9 μm/m.°C

RT = Room Temperature

Data shown for Physical Properties sourced from Haynes International, Inc.

HASTELLOY® C-22 POWDER

TECHNICAL DATASHEET



HASTELLOY® C-22 BULK PROPERTIES (CONTINUED)

PHYSICAL PROPERTIES				
Physical Property	Imperial units		Metric Units	
Specific Heat	100°F	0.098 Btu/lb.°F	50°C	414 J/kg.°C
	200°F	0.101 Btu/lb.°F	100°C	423 J/kg.°C
	400°F	0.106 Btu/lb.°F	200°C	444 J/kg.°C
	600°F	0.111 Btu/lb.°F	300°C	460 J/kg.°C
	800°F	0.114 Btu/lb.°F	400°C	476 J/kg.°C
	1000°F	0.118 Btu/lb.°F	500°C	485 J/kg.°C
	-	-	600°C	514 J/kg.°C
Dynamic Modulus of Elasticity	RT	29.9 x 10 ⁶ psi	RT	206 GPa
	200°F	29.4 x 10 ⁶ psi	200°C	197 GPa
	400°F	28.5 x 10 ⁶ psi	300°C	191 GPa
	600°F	27.6 x 10 ⁶ psi	400°C	185 GPa
	800°F	26.6 x 10 ⁶ psi	500°C	179 GPa
	1000°F	25.7 x 10 ⁶ psi	600°C	174 GPa
	1200°F	24.8 x 10 ⁶ psi	700°C	168 GPa
	1400°F	23.6 x 10 ⁶ psi	800°C	160 GPa
	1600°F	22.4 x 10 ⁶ psi	900°C	152 GPa
	1800°F	21.1 x 10 ⁶ psi	1000°C	144 GPa
Melting Range	2475 - 2550°F	-	1357 - 1399°C	-

RT = Room Temperature

Data shown for Physical Properties sourced from Haynes International, Inc.

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SPECIALTY METAL PRODUCTS

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