

Shenzhen Kadam Technology Co., Ltd.

A207, Hanhaida Technology Park, #11 Lougang Avenue, Songgang, Shenzhen

Kadam® Datasheet for MIM420

Product Descriptions

Ready-to-mold granules for the production of sintered components called martensitic stainless steel 420 using water atomized powder based on catalytic debinding process.

Product Standards

Product Specifications

Items	Unit	SPC.	Measuring method
MFI	g/10min	>400	ISO1133(21.6Kg,190°C)
Sintering Density	g/cm ³	≥7.6	ISO3369

Typical composition after Sintering

C %	Cr %	Mo %	Ni %	Nb %	Mn %	Si %	Fe %
0.35-0.5	12~14	≅0.65	≅0.6	1.0-2.0	≅1.0	≅	Balance
						1.0	

Processing

Processing on standard injection molding machines for thermoplastic polymers, using catalytic debinding process.

Characteristic Properties of Sintered Parts

	As Sintered	Heat Treated
Yield Strength	≅ 650MPa	--
Ultimate Tensile Strength	≅ 800MPa	≅ 1560Mpa
Elongation percentage	≅ 0.97	≅ 0.85
Hardness	≅ 600HV	≅ 730HV
Oversizing factor *	1.2160±0.05 (Sintering density 7.6@1345°C)	

The oversizing factor is only for reference as the difference of the parameters used.

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Injection Molding

Barrel temperature	Zone 1	Zone 2	Zone 3	Nozzle
	180°C	185°C	190°C	195°C
Mold temperature	90~125			
Screw speed	50/min			
Injection speed	10 cm ³ /s			
Molding pressure	900 bar			
Holding pressure	900 bar			
Holding time	0.1~3s			

* The conditions above are only for reference as the differences of the mold or injection molding machine. Make sure the barrel temperature is lower than 200 °C. Too high temperature would destroy the material and shorten the recycle life.

Debinding

Debinding according to catalytic debinding process at 110~145°C using HNO₃ > 98%. The debinding process is finished when a minimal debinding loss of 9.2% is reached.

Sintering

A typical sintering cycle is: room temperature - 5K/min - 600°C, hold 1h, 600°C - 5 K/min - 1345°C, hold 3 h furnace cooling

Heat Treatment

Annealing: Ar 910 °C, 2 h/furnace cool to 500 °C

Hardening: Ar 1020 °C, 15 min/oil

Tempering: air 200 °C, 1 h

Following the above described heat treatment a hardness of > 48 HRC should be reached.

Attentions

The data in this publication are based on our current knowledge and experience. All rights are reserved for adjusting the material parameters when we keep improving our products. The users should try the feasibility of our products because the using parameters may be different.