

Feedstock specifications

Product description	Metallic feedstock for the production of sintered components of molybdenum high-speed steel
Appearance	Spooled filament
Density	4.8 g/cm ³
Binder basis	Solvent + thermal
Powder chemical composition (wt.%)	6.54W-4.81Mo-3.97Cr-1.95V-0.84C-0.36Mn-Bal.Fe
Particle shape	Spherical
Particle size	d90-27.6 µm; d50-11.1 µm; d10-3.6 µm
Powder tap density	-
Powder production method	Water atomized
Powder specification	AISI M2 (T11302)
Shrinkage (approx.)	17.7 ± 0.6 %
Mould factor (approx.)	1.21
Shelf life	Product can be used for approx. 12 months after opening if stored dry at room temperature. Vessel has to be closed airtight thoroughly after feedstock withdrawal

Printing conditions:

Filament diameters (mm)	1.75 ± 0.05 (suitable for direct & Bowden drive)
	2.85 ± 0.05 (suitable for direct & Bowden drive)
Filament heater	Not required
Platform temperature (°C)	60 - 80
Nozzle temperature (°C)	265
Printing speed (mm/s)	13-25
Fan speed (%)	50
Layer thickness (mm)	0.15 - 0.30
Flow rate (%)	95
Nozzle diameter	Recommended ≥ 0.2 mm
Border	Recommended 2 strands



C.I.F.: B02840601



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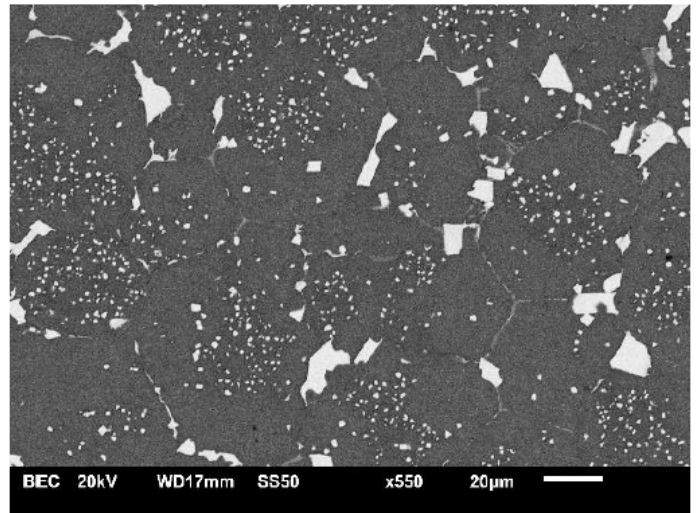
Feedstock processing: Debinding and sintering

Debinding process	Solvent (Cyclohexane, 65 °C, 6-8 h) Thermal (N ₂ atmosphere, T _{máx.} 455 °C, 9 h)
Thermal debinding cycle Suggested for 5 mm thickness	10 °C/min – 150 °C – 10 min 1 °C/min – 260 °C – 1 h 1 °C/min – 420 °C – 1 h 1 °C/min – 455 °C – 1 h
Weight loss (Solvent debinding)	> 3 wt. %
Total weight loss	> 8 wt. %
Sintering temperature	T _{máx.} 1270 °C, vacuum
Sintering time	1 h at maximum temperature
Sintering substrate	Non-metallic

Composition and properties as sintered

Typical composition (wt.%)	C: 0.95 ± 0.01
Density	≥ 8.02 g/cm ³

Microstructure



Hardness	≥ 570 HV1 ≥ 62 HRC
Wear rate	≤ 4.9·10 ⁻⁵ mm ³ /N·m

All information in this document must be considered as a guide based on our current knowledge and experience. The data are regularly acquired according to the implemented quality assurance program. This information is not a guarantee of certain properties, the product specimens' characteristics, or the suitability for its application on a specific purpose. Further tests and trials by customer are not dismissed since a wide variability of factors have an influence on the processing and application of our products. The description displayed does not constitute the agreed contractual quality of the product and it may change without prior information. It is the processor's responsibility to ensure the proprietary rights and existing legislation are considered.



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