

# **PolyMIM GmbH - Product Portfolio**

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*- Catalytic debinding feedstock*

# Product portfolio – polyPOM (Catalytic Binder System)

<b>Low Alloys</b>	
Material Designation	
polyPOM FN02	MIM 2200
polyPOM FN0205	---
polyPOM FN08	MIM 2700
polyPOM FN0805	---
polyPOM 4605	---
polyPOM 8620	1.6523
polyPOM 8740	1.6546
polyPOM 42CrMo4	1.7225
	MIM 4140
polyPOM 16MnCr5	1.7131
polyPOM 1006 mod.	---
polyPOM 100Cr6	1.3505
polyPOM 4340	1.6944
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<b>Stainless Steels</b>	
Material Designation	
polyPOM 17-4PH	1.4542
polyPOM 304L	1.4306
polyPOM 316L	1.4404
polyPOM Ni free	---
polyPOM 410L	1.4024
polyPOM 420W	1.4028
polyPOM 430	1.4016
polyPOM 440C mod.	1.4125
polyPOM Nitronic 50	---
polyPOM 420A	---
polyPOM HK30	---
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<b>Tool Steels</b>	
Material Designation	
polyPOM M2	1.3343
polyPOM S7	1.2355
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<b>Special Alloys</b>	
Material Designation	
polyPOM IN718	1.4016
polyPOM IN713C	2.4671
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<b>Soft Magnetic Alloys</b>	
Material Designation	
polyPOM FN50	1.3926
polyPOM FN42	---
polyPOM Fe3Si	---
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<b>Titanium Alloys</b>	
Material Designation	
polyPOM Ti grade 4	---
polyPOM Ti6Al4V	3.7165
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Material Designation	Shrinkage Factor	Alloy Composition	Condition	YS Rp0,2 [Mpa]	UTM Rm [Mpa]	Elongation [%]	Hardness [HV]	Density min [g/cm <sup>3</sup> ]	Remarks
<b>Low Alloys</b>									
<b>polyPOM FN02</b> MIM2200	1.2160	Ni 1,5-2,5% C 0,1% max Fe Balance	Sintered	>150	>260	>25	>85 (45 HRB)	>7,5	
<b>polyPOM FN0205</b>	1.2160	Si 0,1% max Ni 1,5-2,5% C 0,4-0,6% Fe Balance	Sintered	>255	>415	>15	>110 (62 HRB)	>7,55	case hardenable
<b>polyPOM FN08</b> MIM 2700	1.2160	Ni 6,5-8,5% C 0,1% max Fe Balance	Sintered	>210	>380	>20	>120 (69 HRB)	>7,6	
<b>polyPOM FN0805</b>	1.2160	Ni 6,5-8,5% C 0,4-0,7% Fe Balance	Sintered	>400	>700	>5	>150 (79 HRB)	>7,6	case hardenable
			Heat treated	>1100	>1300	>3	300-510 (30-50 HRC)		
<b>polyPOM 4605</b>	1.2160	Ni 1,5-2,5% Mo 0,2-0,5% Si 0,5% max C 0,4-0,6% Fe Balance	Sintered	>255	>415	>15	>190 (79 HRB)	>7,55	case hardenable
			Heat treated				490 (48 HRC)		
<b>polyPOM 8620</b> 1.6523	1.2160	Mn 0,7-0,9% Ni 0,4-0,7% Mo 0,15-0,25% Cr 0,4-0,6% S 0,03% max P 0,03% max C 0,18-0,23% Fe Balance	Sintered	>400	>650	>3	>190 (90 HRB)	>7,45	case hardenable
			Heat treated				650-800 (58-64 HRC)		

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<b>Low Alloys</b>									
<b>polyPOM 8740</b>  1.6546	1.2160	P 0,01% max S 0,01% max Ni 0,5-0,8% Mo 0,25-0,4% Cr 0,4-0,6% Si 0,3-0,55% Mn 0,1% max C 0,45-0,55% Fe Balance	Sintered	>550	>700	>14	>200 (92 HRB)	>7,6	heat treatment
			Heat treated	>1600	>1665	>5	>510 (50 HRC)		
<b>polyPOM 42CrMo4</b>  1.7225 MIM 4140	1.2160	Si 0,4% max Mn 0,9% max Mo 0,15-0,3% Cr 0,9-1,2% C 0,35-0,5% Fe Balance	Sintered	>400	>700	>3	>130 (71 HRB)	>7,45	heat treatment
			Heat treated	>1250	>1450	>2	>450 (45 HRC)		
<b>polyPOM 16MnCr5</b>  1.7131	1.2160	Si 0,5% max Mn 0,1-1,3% S 0,035% max P 0,035% max Cr 0,8-1,1% C 0,14-0,19% Fe Balance	Sintered	>320	>380	>15	>120 (67 HRB)	>7,4	heat treatment
			Heat treated	>600	>1050	>8	>380 (39 HRC)		
<b>polyPOM 1006 mod.</b>	1.2160	S 0,04% max P 0,04% max Si 0,15% max Mn 0,25% max Fe Balance	Sintered	>125	>275	>40		>7,5	

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<b>Low Alloys</b>									
<b>polyPOM 100Cr6</b> 1.3505	1.2160	Cr 1,35-1,65% C 0,8-1,05% Fe Balance	Sintered	>500	>900	>5	>230 (97 HRB)	>7,4	heat treatment, wear resistant
			Heat treated				>700 (60 HRC)		
<b>polyPOM 4340</b> 1.6944	1.2160	Ni 1,65-2,0% Mo 0,2-0,3% Cr 0,6-0,9% C 0,35-0,45% Fe Balance	Sintered	>500	>700	>11	>130 (71 HRB)	>7,5	heat treatment
			Heat treated	>1400	>1620	>2	>450 (45 HRC)		

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<b>Stainless Steels</b>									
<b>polyPOM 17-4PH</b>  <b>polyPOM 17-4PH (MA)</b> (Master Alloy)  <b>polyPOM 17-4PH (WAP)</b> (Water atomised Powder)  1.4542	1.2160 1.1669  (MA) 1.2160 (MA) 1.1669  (WAP) 1.1669	Cr 15,0-17,0% Ni 3,0-5,0% Mn 1,5% max Si 0,7% max Cu 3,0-5,0% Mo 0,6% max P 0,04% max S 0,015% max O 0,38% max Nb 0,15-0,45% C 0,07% max Fe Balance	Sintered   Heat treated	>660   >950	>800   >1100	>6   >3	>300 (30 HRC)   >370 (38 HRC)	>7,65	Hardenable ferromagnetic
<b>polyPOM 304L</b>  <b>polyPOM 304L (WAP)</b> (Water atomised Powder)  1.4306	1.1669  (WAP) 1.1669	Cr 18,0-22,0% Ni 8,0-12% Mn 2,0% max Si 1,0% max S 0,03% max P 0,045% max C 0,03% max Fe Balance	Sintered	>180	>480	>25	>120	>7,78	non-magnetic, austenitic, corrosion resistant
<b>polyPOM 316L</b>  <b>polyPOM 316L (MA)</b> (Master Alloy)  <b>polyPOM 316L (WAP)</b> (Water atomised powder)  1.4404	1.2160 1.1669  (MA) 1.2160 (MA) 1.1669  (WAP) 1.1669	Cr 16,0-18,0% Ni 10,0-14,0% Mo 2,0-3,0% Mn 2,0% max Si 1,0% max S 0,03% max P 0,045% max C 0,03% max Fe Balance	Sintered	>140	>450	>40	>120	>7,9	non-magnetic, austenitic, corrosion resistant

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<b>Stainless Steels</b>									
<b>polyPOM Ni free</b>	1.1669	Cr 16,5-17,5% Mn 10,5-12,0% Mo 3,0-3,5% Si 0,8% max S 0,03% max P 0,04% max Ni 0,1% max Co 0,05% max C 0,15% max Fe Balance	Sintered	>690	>1090	>30	>250	>7,5	Austentic stainless steel, good corrosion resistance
<b>polyPOM 410L</b> 1.4024	1.2160 1.1669	Cr 11,0-13,0% Ni 0,5-1,5% Si 0,8% max C 0,06% max Fe Balance	Sintered	>350	>500	>20	>190	>7,55	Martensitic stainless steel, good corrosion resistance
<b>polyPOM 420W</b> 1.4028	1.2160	Nb 1,0-2,0% Mo 0,65% max Ni 0,5% max Cr 12,0-14,0% Mn 1,0% max Si 1,0% max S 0,03% max P 0,04% max C 0,35-0,5% Fe Balance	Sintered	>650	>800	>0,97	>550 (55 HRC)	>7,6	Martensitic stainless steel
			Heat treated		>1560	>0,85	>610 (61 HRC)		

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<b>Stainless Steels</b>									
<b>polyPOM 430</b>	1.2160	S 0,03% max P 0,04% max Cr 16,0-18,0% Mn 1,0% max Si 1,0% max C 0,8% max Fe Balance	Sintered	>200	>350	>30	>100	>7,6	ferritic, non hardenable grade, magnetic, good corrosion resistance
<b>polyPOM 440C mod.</b>  mod. 1.4125	1.1669	Nb 1,0-2,0% Mo 0,75% max Ni 0,6% max Cr 16,0-18,0% Mn 1,0% max Si 1,0% max S 0,03% max P 0,04% max C 0,85-1,0% Fe Balance	Sintered		>780	>15	>350 (35 HRC)	>7,6	Martensitic stainless steel
			Heat treatment				>590 (35 HRC)		
<b>polyPOM Nitronic 50</b>  ASTM XM-19; UNS S20910	1.1669	N 0,2-0,4% V 0,1-0,3% Mo 1,5-3,0% Cr 20,5-23,5% Mn 4,0-6,0% Ni 11,5-13,5% Si 1,0% max S 0,03% max P 0,04% max C 0,06% max Fe Balance	Sintered	>380	>570	>16	200 (190HB)	>7,8	Austenitic stainless steel, non magnetic, good corrosion resistance



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<b>Stainless Steels</b>									
polyPOM 420A	1.2160	Si 1,0% max Mn 1,0% max Cr 12,0-14,0% C 0,18-0,30% Fe Balance	Sintered					>7,45	Hardenable, martensitic stainless steel
			Heat treated	>1300	>1600	>2	460 (48 HRC)		
polyPOM HK30	1.1669	S 0,04% max P 0,04% max Mo 0,5% max Mn 1,5% max Si 0,75-1,75% Nb 1,2-1,5% Ni 19,0-22,0% Cr 23,0-27,0% C 0,25-0,35% Fe Balance	Sintered	>350	>500	>10	>200	>7,7	Austenetic stainless steel

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<b>Tool Steels</b>									
<b>polyPOM M2</b>  1.3343	1.1669	Si 0,2-0,45% Mn 0,15-0,4% S 0,03% max P 0,03% max V 1,75-2,2% W 5,5-6,75% Ni 0,3% max Mo 4,5-5,5% Cr 3,75-4,5% C 0,78-1,05% Fe Balance	Sintered	>800	>1200	>1	520 (50 HRC)	>7,95	heat treatment
			Heat treated				820 (64 HRC)		
<b>polyPOM S7</b>  1.2355	1.1669	S 0,03% max P 0,03% max Mo 1,3-1,8% V 0,1-0,45% Cr 3,0-3,5% Mn 0,2-0,9% Si 0,2-1,0% C 0,45-0,55% Fe Balance	Sintered					>7,6	Hardenable

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<b>Special Alloy</b>									
<b>polyPOM IN718</b>  1.4016	1.1515	Ni 50,0-55,0% Nb 4,7-5,5% Ti 0,65-1,15% Al 0,2-0,8% Mo 2,8-3,3% Cr 17,0-21,0% Cu 0,3% max Si 0,22% max Mn 0,12% max B 0,006% max C 0,03-0,06% Fe Balance	Sintered 20°C	>450	>830	>20	>200	>8,0	heat resistance 1050°C
			Heat treatment	>1040	>1210	>6	>390		
<b>polyPOM IN713C</b>  2.4671	1.1515	Nb 1,8-2,8% Ti 0,5-1,0% Al 5,5-6,5% Mo 3,8-5,2% Cr 12,0-14,0% C 0,08-0,20% Ni Balance	Sintered 20°C	>820	>1300	>15	340	>7,8	Turbo charger grade (1050°C)
			650°C	>715	>995				
			850°C	>355	>490				
			1000°C	>130	>165				

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<b>Soft magnetic Steel</b>									
<b>polyPOM FN50</b> 1.3926	1.2160	Ni 49,0-51,0% C <0,1% Fe Balance	Sintered	>150	>400	>20	>100	>7,85	Soft magnetic
<b>polyPOM FN42</b>	1.2160	Ni 41,5-42,5% C <0,1% Fe Balance	Sintered				>110 (HV30)	>7,85	Soft magnetic
<b>polyPOM Fe3Si</b>	1.2160	Si 2,5-3,1% C 0,1% max Fe Balance	Sintered	>300	>500	>20	>120	>7,55	Hc ~ 62A/m (ρ=7.60 g/cm <sup>3</sup> ) Br ~ 1.325 T (ρ=7.60 g/cm <sup>3</sup> ) Js (4 kA/m) ~ 1590 T (ρ=7.60 g/cm <sup>3</sup> ) μmax = 8.674 (ρ=7.60 g/cm <sup>3</sup> )

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<b>Titanium Alloy</b>									
<b>polyPOM Ti grade 4</b>	1.1450	O 0,4% max N 0,1% max C 0,2% max Ti Balance	Sintered	>480	>550	>5	>160	>4,3	
<b>polyPOM Ti6Al4V</b> 3.7165	1.1450	O 0,25% max N 0,05% max H 0,015% max Al 5,5-6,5% V 3,5-4,5% Fe 0,3% max C 0,08% max Ti Balance	Sintered	>750	>850	>6		>4,2	