

# MIM POWDERS STAINLESS STEEL

## TECHNICAL DATA SHEET



## SPECIALTY METAL ATOMIZED POWDERS

Recognizing the need for superfine powders for injection molding and other industry requirements, AMETEK Specialty Metal Products (SMP) has developed a proprietary method of producing and processing fine metal powders down to 10 microns. Special size distributions are available on a custom basis.

### AUSTENITIC STAINLESS STEEL

316L used in applications which require good corrosion resistance, strength and ductility. Also available 304L and 310L.

### FERRITIC STAINLESS STEEL

430L ferritic stainless steel combines good magnetic response and some corrosion resistance. Also available 410L, 434L, 409 and 420.

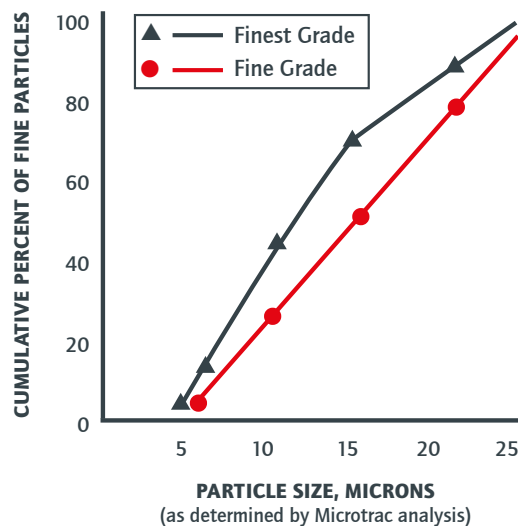
### 17-4 PH PRECIPITATION HARDENING STAINLESS STEEL

This precipitation hardening grade stainless is used to obtain strength and hardness. It offers better corrosion resistance than 400 series stainless steel. A range of properties and hardness can be achieved through heat treatment.

### POWDER MARKETS

- Automotive
- Industrial engineering
- Consumer applications
- IT

### METAL INJECTION MOLDING GRADE PARTICLE SIZE DISTRIBUTION



Example parts made with the MIM process. This process allows for high volume, complex parts produced in a single step.

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### MIM CHEMICAL COMPOSITION

GRADES	NOMINAL CHEMICAL COMPOSITION (%)								
	Fe	Ni	Cr	Mo	C (max)	Cu	Cb	Mn (max)	Si (max)
316L	BAL	10 - 14	16 - 18	2 - 3	0.03	-	-	0.5	1.0
430L	BAL	-	16 - 18	-	0.05	-	-	1.0	1.0
17-4 PH	BAL	3 - 5	15.5 - 17.5	-	0.07	3 - 5	0.15 - 0.45	0.5	1.0
70/30 FeCr	70	-	30	-	-	-	-	-	-

Other elements: total by difference may not exceed 1.0% combined.

### MIM PHYSICAL PROPERTIES

GRADES	PHYSICAL PROPERTIES				HARDNESS
	Ultimate Strength 10 <sup>3</sup> psi	Yield Strengths 10 <sup>3</sup> psi	Elongation %	Density g/cm <sup>3</sup>	
316L	60 - 75	20 - 25	35 - 50	7.6	57 HRB
430L	50 - 60	30 - 35	20 - 25	7.5	65 HRB
17-4 PH	150 - 172	120 - 158	4.0 - 6.0	7.5	33 HRC

### AMETEK SMP FINE POWDERS

**Metal Injection Molding**  
**Plastics Compounding and Other Applications**

GRADES	ADVANCED TESTING	SIZING
17-4 PH 316L 70/30 FeCr 430L Custom Alloys	Microtrac Tap Density Pycnometric Density	Each order is processed per customer specifications. -400 Mesh -500 Mesh -20µm D50 = 20 microns -15µm D50 = 15 microns -10µm D50 = 13 microns

**We have process alternatives to match your binder systems.  
Call us to discuss options for custom formulation and custom grades and sizing.**

**EIGHTY FOUR** / **AMETEK**  
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