

## EDRO UltraChem® #15 Precipitation Hardening Stainless Mold Steel

Category : Metal , Ferrous Metal , Stainless Steel , Precipitation Hardening Stainless

### Material Notes:

Ultrachem® is a chromium-nickel precipitation-hardening stainless steel, a modified PH alloy grade, which is characterized by: exceptional corrosion resistance, uniform hardness in all dimensions, excellent compressive strength, simple low temperature heat treatment with small dimensional change, good weldability, and excellent toughness. Ultrachem® is normally supplied in a fully heat treated condition, age hardened to 38 or 42 HRC. Ultrachem® is recommended for use in longlife molds subjected to severe working conditions, including corrosive materials and atmospheres, high stressed and indentation experienced in fast cycling molding operations. It better resists corrosion from the more highly corrosive plastics than AISI 420 stainless steels. Information provided by EDRO

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_EDRO-UltraChem-15-Precipitation-Hardening-Stainless-Mold-Steel.php](http://www.lookpolymers.com/polymer_EDRO-UltraChem-15-Precipitation-Hardening-Stainless-Mold-Steel.php)

Physical Properties	Metric	English	Comments
Density	7.75 g/cc	0.280 lb/in <sup>3</sup>	Age-hardened to 42 HRC
	@Temperature 399 °C	@Temperature 750 °F	
	7.81 g/cc	0.282 lb/in <sup>3</sup>	Age-hardened to 42 HRC
	@Temperature 199 °C	@Temperature 390 °F	
	7.86 g/cc	0.284 lb/in <sup>3</sup>	Age-hardened to 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	38 - 42	38 - 42	
Tensile Strength, Ultimate	1310 MPa	190000 psi	Age hardened at 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Tensile Strength, Yield	1210 MPa	175000 psi	Age hardened at 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Elongation at Yield	14 %	14 %	in 2"
Reduction of Area	50 %	50 %	
Modulus of Elasticity	175 GPa	25400 ksi	
	@Temperature 399 °C	@Temperature 750 °F	
	186 GPa	27000 ksi	
	@Temperature 199 °C	@Temperature 390 °F	
	197 GPa	28500 ksi	

Mechanical Properties	@Temperature 20.0 °C Metric	@Temperature 68.0 °F English	Comments
Charpy Impact	33.9 J	25.0 ft-lb	Age hardened at 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.00 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 20.0 - 199 °C	@Temperature 68.0 - 390 °F	
	11.7 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.50 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 20.0 - 399 °C	@Temperature 68.0 - 750 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Thermal Conductivity	16.1 W/m-K	112 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	18.6 W/m-K	129 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 199 °C	@Temperature 390 °F	
	21.5 W/m-K	149 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 399 °C	@Temperature 750 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.040 %	0.040 %	
Chromium, Cr	14.75 %	14.75 %	
Copper, Cu	3.2 %	3.2 %	
Iron, Fe	76.68 %	76.68 %	As Balance
Manganese, Mn	0.50 %	0.50 %	
Nickel, Ni	4.5 %	4.5 %	
Niobium, Nb (Columbium, Cb)	0.25 %	0.25 %	
Sulfur, S	0.080 %	0.080 %	

Descriptive Properties	Value	Comments
Color Code	White	

## **Contact Songhan Plastic Technology Co.,Ltd.**

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