

AK Steel 17-4 PH® Precipitation Hardening Stainless Steel, Condition A

Categories: [Metal](#); [Ferrous Metal](#); [Martensitic](#); [Stainless Steel](#); [Precipitation Hardening Stainless](#)

Material Notes: AK Steel 17-4 PH® provides an outstanding combination of high strength, good corrosion resistance, good mechanical properties at temperatures up to 600°F (316°C), and good toughness in both base metal and welds. Short-time, low-temperature heat treatments minimize distortion and scaling. This alloy is widely used in the aerospace, chemical, petrochemical, food processing, paper and general metalworking industries.


The material supplied from the mill is in Condition A. After fabrication eight standard heat treatments have been developed to provide a wide range of properties.

Information provided by AK Steel

Key Words: UNS S17400

Vendors: [Click here to view all available suppliers for this material.](#)

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Physical Properties	Metric	English	Comments
Density	7.78 g/cc	0.281 lb/in ³	
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	35	35	
Tensile Strength, Ultimate	1103 MPa	160000 psi	
Tensile Strength, Yield	1000 MPa @Strain 0.200 %	145000 psi @Strain 0.200 %	
Elongation at Break	5.0 %	5.0 %	in 2 inches
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000980 ohm-cm	0.0000980 ohm-cm	
Thermal Properties	Metric	English	Comments
CTE, linear 	10.8 µm/m-°C @Temperature 21.0 - 93.0 °C	6.00 µin/in-°F @Temperature 69.8 - 199 °F	
	11.3 µm/m-°C @Temperature <=427 °C	6.28 µin/in-°F @Temperature <=801 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.070 %	<= 0.070 %	
Chromium, Cr	15 - 17.5 %	15 - 17.5 %	
Copper, Cu	3.0 - 5.0 %	3.0 - 5.0 %	
Iron, Fe	69.91 - 78.85 %	69.91 - 78.85 %	As Remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Nb + Ta	0.15 - 0.45 %	0.15 - 0.45 %	
Nickel, Ni	3.0 - 5.0 %	3.0 - 5.0 %	
Phosphorus, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.