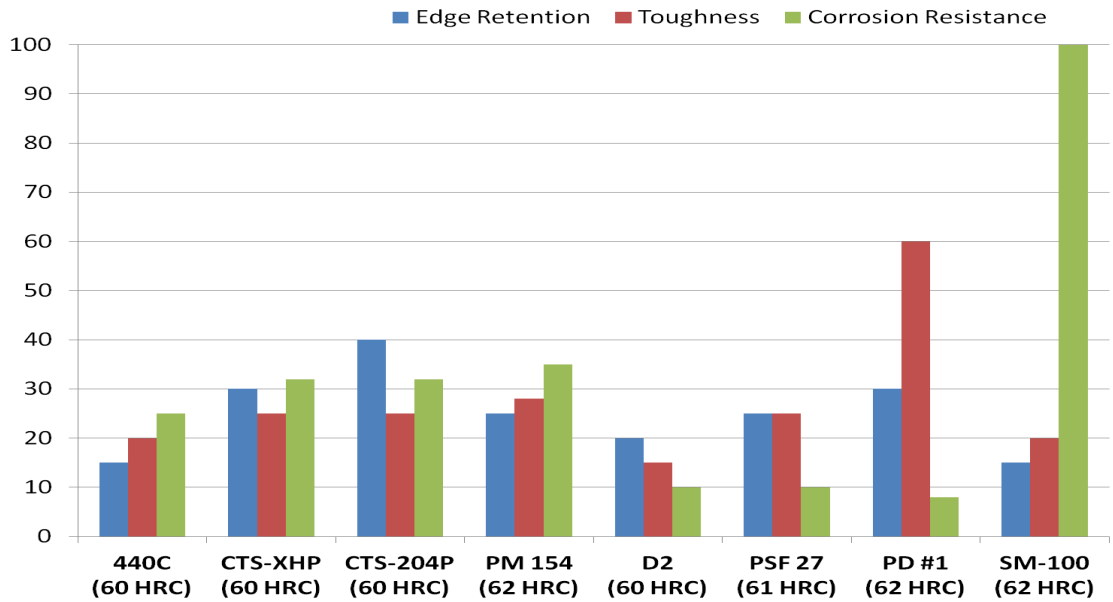
Specialty Metals LLC

Technical Information: CTS™ XHP

CTS™ XHP is a powder metallurgy, high carbon, high chromium stainless steel. The grade is used in high end cutlery and applications requiring a high degree of corrosion resistance and wear resistance. Corrosion resistance is similar to 440C stainless steel

Typical Chemical Composition			
Carbon	1.60%	Chromium	16.00%
Molybdenum	0.80%	Silicon	0.40%
Vanadium	0.45%	Manganese	0.50%

SBSM Knife Steel Properties Comparison



Physical Properties

Modulus of Elasticity. . . . . 31 psi x 10^6
Density. . . . . 0.275 lb/in^3
Annealed Hardness. . . . . 230/255 Brinell Hardness (BHN)
Machinability. . . . . Similar to 440C stainless steel

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Heat Treatment

Annealing

Heat to 1550/1600°F, hold 4 hours
Slow cool 20°F/hour maximum to 600°F
Then air or furnace cool to room temperature

Stress Relieving

Performed prior or after machining to minimize distortion in heat treating
1200°F, hold two hours
then air cool to room temperature

Hardening

Salt bath, protective atmosphere, or vacuum furnace equipment preferred.

High Heat (Austenitizing)

1850-2000°F for 25 minutes at heat.

Quench

Salt bath quench to 1000-1100°F, equalize, then air cool to 150°F.
Vacuum or atmosphere quench rate of a minimum 50 degrees F per minute down to 1200F is critical to achieve best heat treat response.
Temper immediately following quench

Tempering

Minimum 400°F tempering temperature required.
Double tempering is required, triple tempering recommended.
Air cool to room temperature between tempers.
For maximum corrosion resistance do not temper above 800°F

Typical Heat Treat Response

Hardening Temp		Tempering Temp		Hardness
°F	°C	°F	°C	HRC
1900	1038	400	205	60.5
		450	232	60.0
		500	260	59.0
		600	315	58.0
		800	427	58.0

* Note: Tempering between 800 F and 1000 F is not recommended for stainless steels

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