



Technical Information: PSB 22

PSB 22 is a cold work tool steel produced by the ESR melting practice.

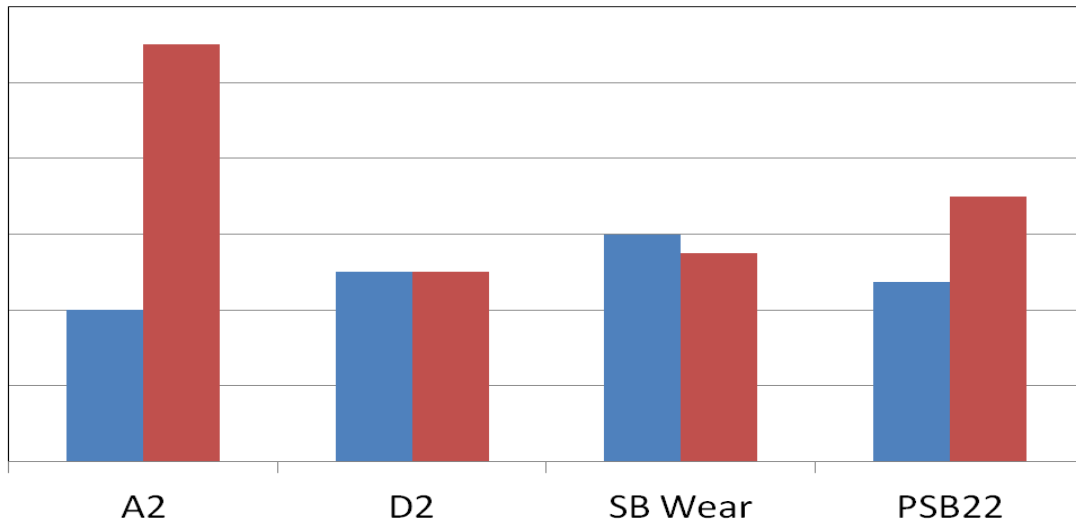
PSB 22 is characterized by an excellent balance of high wear resistance, and high chipping resistance (toughness). PSB 22's high tempering temperatures make it a good substrate for most coatings.

Typical Chemical Composition

Carbon	1.00%	Chromium	8.00%
Molybdenum	2.10%	Silicon	1.00%
Vanadium	0.30%	Manganese	0.40%

SBSM Tool Steel Properties Comparison

■ Relative Wear Resistance ■ Chipping Resistance



Physical Properties

Modulus of Elasticity.....30 psi x 10⁶(207 GPa)
 Density..... 0.281 lb/in³
 Annealed Hardness.....210-225 Brinell Hardness (BHN)
 Machinability.....Similar to A2 Tool Steel



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Heat Treatment

Annealing

Heat to 1550°F, hold two hours
 Slow cool 20°F/hour to 900°F
 Then air or furnace cool to room temperature

Stress Relieving

Performed prior or after machining to minimize distortion in heat treating
 1100/1200°F, hold two hours
 then air cool to room temperature

Hardening

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

High Heat (Austenitizing)

1875/1900°F for 30 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 900°F is critical to achieve best heat treat response.
 Temper immediately following quench when material reaches 150°F or below.

Tempering

Minimum 400°F tempering temperature required.
 Double tempering is required, triple tempering recommended.
 Air cool to room temperature between tempers.

Typical Heat Treat Response

Tempering Temp °F °C	Hardening Temp	
	1875°F 1024°C	Hardening Temp 1900°F 1038°C
As Quenched	62/63 HRC	63/64 HRC
400 205	61 HRC	61 HRC
500 260	60 HRC	60 HRC
600 315	59 HRC	59 HRC
700 371	60 HRC	60 HRC
800 427	61 HRC	61 HRC
950 510	62 HRC	63 HRC
1000 538	60 HRC	62 HRC
1025 552	58 HRC	60 HRC