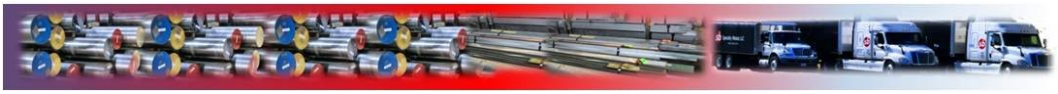


Specialty Metals LLC

Technical Information **PSF27**

PSF27 is a chromium, molybdenum, and vanadium alloyed cold work tool steel (AISI D2 analysis +) produced using the Spray Forming Process. The Spray Forming Process allows for rapid solidification resulting in materials with a very fine grain and homogeneous structure. This structure results in improved toughness, wear resistance, crack resistance, and higher hardness. It also yields more predictable heat treatment

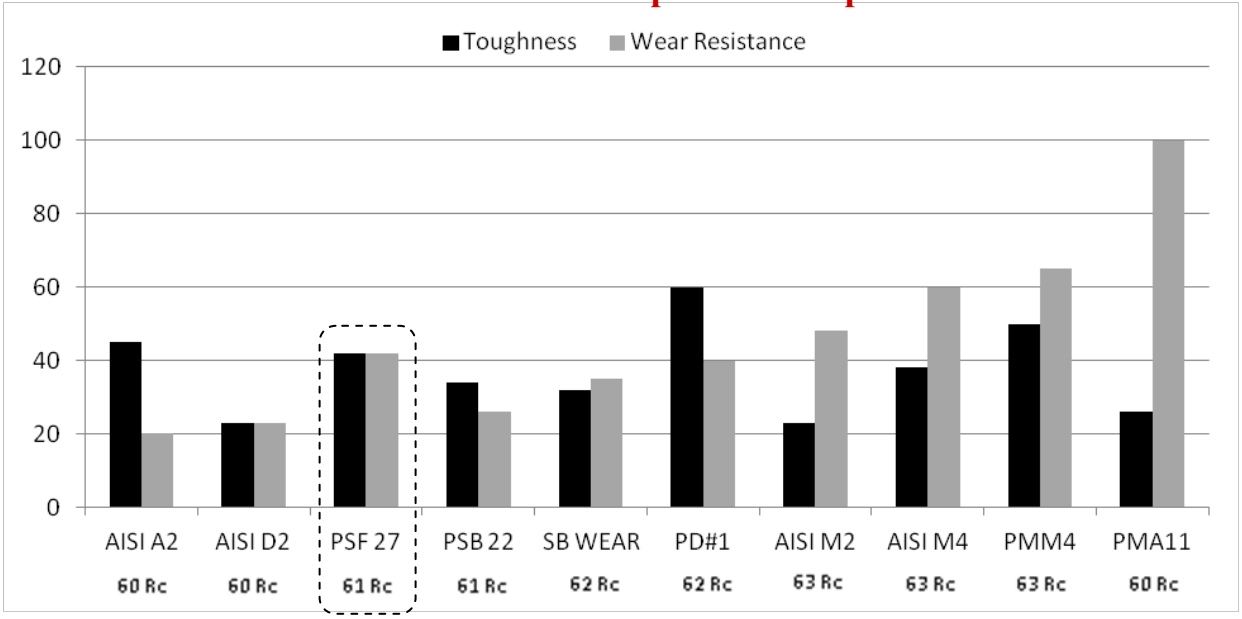
Typical Chemical Composition

Carbon	1.55%
Silicon	0.40%
Manganese	0.40%
Vanadium	1.00%
Chromium	12.00%
Molybdenum	0.75%
Nitrogen	0.07%

Common Applications

Blanking Dies
Forming Rolls
Punches
Knives
Thread Roll Dies
Crush cutting Tools
Shredders

SBSM Tool Steel Properties Comparison



Physical Properties

Modulus of Elasticity .....30 psi x 10^6 .....207 GPa)
Density .....0.2833 lb/in^3 .....(7861kg/M³)
Annealed Hardness.....215-255 Brinell(BHn)
Machinability .....50-60% of 1% carbon Steel
Thermal Conductivity.....15 BTU/hr/ft/°F(200F)

Specialty Metals LLC

Technical Information **PSF27**

Heat Treatment

Preheat : 1200/1300°F, equalize.

High Heat (Austenitizing): 1870/1900°F, hold 30 minutes at temperature.

Quench: Air or positive pressure vacuum. Cool to 150 °F.

Temper: 400°F/975°F - hold 2 hours at temperature, air cool to room temperature between tempers. Temper twice. Recommended tempering temperature 930-975°F.

Annealing:
Heat to 1600°F, hold for two hours at temperature, then cool slowly(25°F/hr) to 1000°F, then air cool.
Or
Heat to 1600°F, hold two hours at temperature, cool to 1425°F, hold six hours then air cool.

Stress Relieving:

Annealed Material: Heat to 1200°F, hold for two hours at temperature, cool in still air to room temperature.
Hardened Material: Heat to 25/50°F below tempering temperature, hold two hours then cool in still air to room temperature

Size Change During Hardening-

Hardening Temp °F	Hardening Temp °C	Tempering Temp °F	Tempering Temp °C	HRC	Longitudinal Size Change %
1900	1040	500	260	60.5	+.03
1900	1040	950	510	62	+.04