

Ferro-Tic Grade MS-5A

GRADE DESCRIPTION

Ferro-Tic Grade MS-5A is an advanced metal matrix composite comprised of ultra-hard titanium carbide grains homogeneously dispersed in an age-hardenable, martensitic stainless steel matrix. In the annealed state, it can be readily machined into any desired shape using conventional tooling. MS-5A exhibits excellent corrosion resistance due to the low carbon content in the chromium nickel precipitation hardening matrix.



APPLICATIONS

Ferro-Tic Grade MS-5A is ideally suited for applications in the food and chemical industries. MS-5A is widely used for pelletizer knives and die faces in the plastics industry.

CHEMICAL COMPOSITION GUIDE (weight %)

Carbide Phase	Binder Phase					
Titanium Carbide	Cr	Ni	Co	Mo	Ti	Fe
30.0	14.0	6.0	5.0	4.0	1.5	Bal

SOLUTION ANNEALING

Temperature: 1800°F for 1 Hour,
Rapid Cool, Approx. 52 HRC
(material is supplied in the solution annealed condition)

AGE HARDENING

Temperature: 900°F for 10 Hours,
Rapid Cool, 59-63 HRC

POPERTIES

Density, g/cc.....6.55
Hardness, Rc
Solution Annealed.....vApprox. 52
Aged.....59-63
Transverse Rupture Strength.....256
(psi x 103)
Compressive Strength.....415
(psi x 103)
Impact Strength.....343
(charpy unnotched) (in-lbs/in2)
Tensile Strength.....197
(psi x 103)
Modulus of Elasticity, Mpsi39
Coefficient of Thermal Expansion x 10⁻⁶ in/in/°F
70°F-212°F.....4.606
70°F-840°F.....5.471
Linear Size Change
Thru Heat Treatment, %.....-0.009