Tech 40

For textile, plastic injection moulding and sizing, pump, glass, and other industries where sliding and rotational wear are concerns…

Tech 40 is a composite ceramic material thermochemically bonded to specified areas on a part, including outside diameters and inside diameters and some hidden holes and ports. Individual ceramic particles are sub-micron in size and consist of mixtures of selected ceramic materials, bonded together and to the substrate. Porous following the initial formation of the ceramic, **Tech 40** can be densified using a wide selection of ceramic precursor chemicals. When thermochemically converted into ceramic in-situ, the densification processes form additional bonds within the initial ceramic body. Each densification cycle fills some of the remaining porosity until a dense, non-porous ceramic coating has been created.

Bond Strength

Tech 40 coating develops a bond into the substrate through the formation of a spinel-like interface between the ceramic coating and the metal surface. Part of the thermochemical reaction causes the substrate metal atoms to migrate into the ceramic coating during initial processing. The bond strength of the ceramic coating to the substrate is in excess of 10,000 PSI.

Hardness

Individual particles within the **Tech 40** coating range in hardness from 1000 Vickers to 2850 Vickers. When measured microscopically the composite hardness is 1850 Vickers. In sliding wear applications the surface wears proportionately to the hardest component, chromium oxide, which has a hardness of 2850 Vickers.

Thickness

Optimum results are achieved when the **Tech 40** coating is 0.002 to 0.004 inches thick. Dimensional tolerances of +/-0.001 are common and tolerances of +/-0.0001 are achievable.

Wear Resistance

Tech 40 is superior in sliding wear resistance. Such diverse industries as oil drilling, textiles, automotive, steel and glass manufacturing have benefited from the extraordinary increase in life of critical machine components realised by using this coating. Life increases as much as 50 times have reduced maintenance costs and increased production efficiencies by using **Tech 40.**

Benefits of Tech 40:

- 0.002" - 0.004" thick
- Hardness range 1000-1850 Vickers
- Chemically bonded
- Extreme wear resistance
- Resistant to thermal cycling/shock
- Ultra fine grain size
- Surface finish adjustable from 5 - 60 Rms
- Applied to inside diameter and outside diameter
- Low friction

Bodycote

Bodycote Metallurgical Coatings

Tech 40

Technical Data:

Hardness	1850 Vickers
Bond Mechanism	Chemical
Bond Strength	Over 10,000 PSI
Thickness	0.002 – 0.004 Inches, typical (50 – 70 microns)
Coefficient of friction	.22 - .28 Against fibre

Bodycote K-Tech Ceramics

A unique range of thermochemically formed ceramic coatings for the prevention of wear and corrosion in a wide variety of industrial applications and for every type of surface.

Bodycote K-Tech coatings have been uniquely developed for applications in specific industries. Several formulae cover a virtually limitless number of potential applications. They can be applied to most ferrous and some non-ferrous metals.

The fundamental differences compared to other ceramics are:

- Chemically, not mechanically, bonded
- Absolutely dense, pore free, corrosion barriers
- Delivered via water based slurries that can be applied like paint to complicated geometries and internal bores
- Low friction; the coated surface is anti-fouling and yarn friendly

Bodycote Metallurgical Coatings Ltd
Heapy Street
Macclesfield
Cheshire
SK11 7JB

Tel: +44 (0)1625 443160
Fax: +44 (0)1625 615080
E-mail: infotp@bodycote.co.uk
Web: www.bodycote.com

Bodycote Metallurgical Coatings Ltd
2 Gladeswood Road
Knowsley Industrial Park North
Knowsley
Merseyside
L33 7BB

Tel: +44 (0)151 546 2147
Fax: +44 (0)151 546 2871
E-mail: infotp@bodycote.co.uk
Web: www.bodycote.com

Testing
Thermal Processing