

Properties and Applications of Tool Coatings

Coating	Properties	Characteristics	Applications
Titanium Nitride (TiN)	Gold Colour. ~2300 - 2900HV 0.2Ra mm. Oxidation temperature 400°C. Thickness 2-8µm	Reduces friction. Improves chip flow. Extends wear resistance. Chemically Stable Reduces build-up Increased speed vs uncoated	Carbon steels Alloy steels Stainless steels Irons Heat resistant alloys
Zirconium Nitride (ZrN)	Gold colour ~2800HV 0.2Ra mm Oxidation temperature 500°C.	Wear resistance, high hardness and excellent corrosion resistance. Low coefficient of friction	
Titanium Aluminium Nitride (TiAlN)	Black/Bronze colour ~2600HV 0.4Ra mm Oxidation Temperature 800°C Thickness 2-8µm	Improves wear resistance Chemically stable Thermally stable Oxidizes to AlxOy Thermal/Chemical Insulator Suitable for high speed applications	Stainless steels High temperature alloys Cast irons Dry Machining
Aluminium Titanium Nitride (AlTiN)	Black colour ~4500HV 0.115Ra mm Oxidation Temperature 800°C Thickness 3-6µm	Improves wear resistance Chemically stable Reduces build-up Oxidised to AlxOy Thermal/Chemical insulator Suitable for high speed applications	Stainless steels High temperature alloys Cast irons Dry machining Hardned steels
Titanium Carbo-Nitride (TiCN)	Blue-black colour ~4500Hv 0.18Ra mm Oxidation Temperature 350°C Thickness 2-8µm	Reduces build-up Resists creater wear Extends wear resistance Improves chip flow	Steel Stainless steels Heat resistance alloys Carbon steel
Chrome Nitride (CrN)	Silver colour ~2500HV 0.2Ra mm Oxidation temperature~700°C	Extends wear resistance Reduces build-up Facilitates chip flow	Aluminium Copper Brass
TETRABOND®	Amorphous Diamond ~8500HV	Extends wear resistance	6000 & 7000 Aluminium Graphite and composites

Note: There are many other commercially available coatings which can be supplied. Mohawk can assist you to select the most appropriate coating for your application functions of cutting fluid