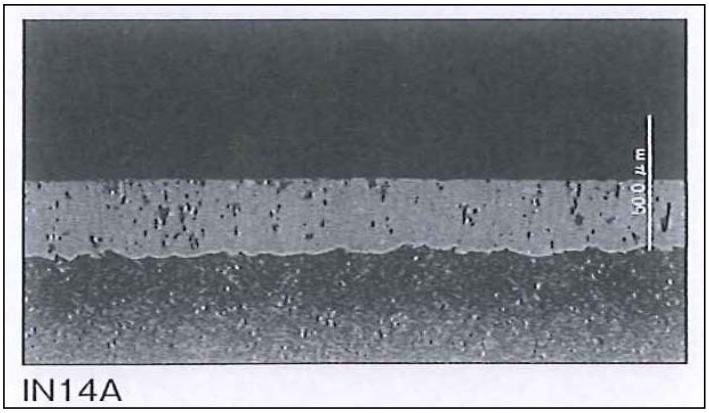
Physical Vapor Deposition (PVD) – Piston Rings:

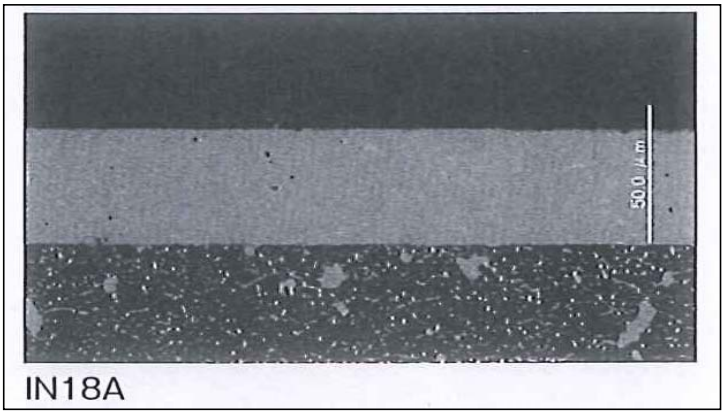
Typical surface modification and its applications

CLASSIFICATION		TRENTMENT	FEATURES	HARDNESS	APPLICATIONS
Vapor Deposition	PVD (IN14A) (IN18C) (IN18A)	Generating gaseous descharge by adding reactive gas into a vacuum container, vaporized particles are ionized and form the layer on the surface	Chromium Nitride.	HV1000 – HV2000	Automobile Piston Rings (Top, 2nd, and OIL Ring)
			Strong Adhesion by AIP method and treatment in low temperature possible		
			Very excellent in wear and corrosion resistance and excellent in scuff resistance.		
	PVD (IN20D)		Deposit having high hardness and also toughness.	HV1800 – HV2200	
			Strong Adhesion by AIP method and treatment in low temperature possible		
			Very excellent in wear and corrosion resistance and excellent in scuff resistance.		
	DLC	Process gas (CH4, C2H2) plasmatized and activated in a vacuum chamber by high frequency (RF), direct current (DC) or micro wave to chemical-react and to form the deposit.	High in hardness but low in coeefficient of friction in dry condition and excellent in parting property against aluminum.	HV1000 – HV3000	
			Excellent in wear and corrosion resistance and very excellent in scurff resistance.		

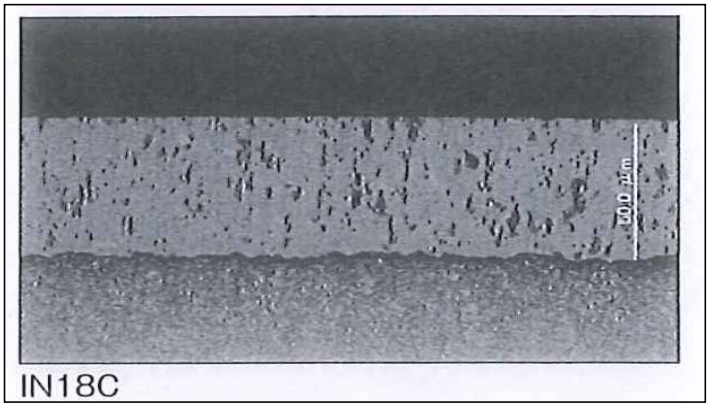
PVD



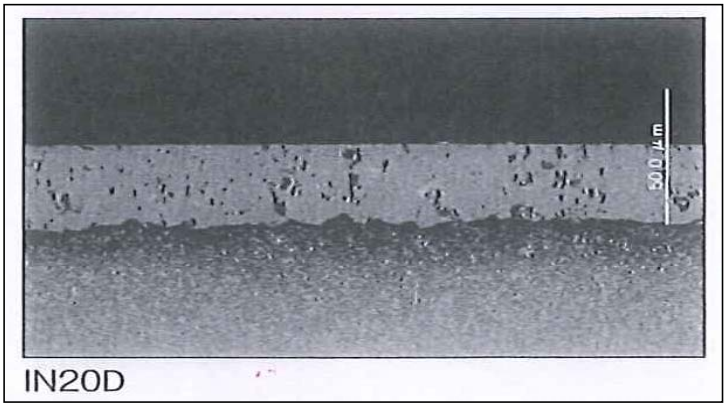
IN14A



IN18A



IN18C



IN20D