RAYDENT® Surface improving technology Super rust-inhibiting treatment to strengthen a base metal

Raydent Corrosion Resistance

Raydent treatment technology is an alloyed surface formed by an electrochemical reaction below O°C. Part of this surface forms an alloy like layer in the periphery of the metal through a diffusion process. This way the base material and layer are completely integrated into each other and are joined "permanently". Through this total integration into the base material, the layer can neither flake nor peel off. The resulting surface consists of a uniform film and forms an extremely resistant rust protection film based on chromium ceramic.

Advantages:

No hydrogen embrittlement, no tempering process necessary (material's original properties are retained completely)/ improved relationship between hardness and elasticity/ most resistant and effective rust protection layer of all conventional processes/ in friction or wear resistant applications no peeled particles occur/ ideal option to increase service life of parts in rust protection and abrasion applications.

Properties:

Type:	under 0°C diffusion layer growth
Color:	black
Layer thickness:	1~2 μm (additional advantage is the geometries do not change)
Corrosion protection:	typically life of more than 10 years (up to 20 or more years are possible)
Friction/abrasion:	very resistant, since no particles can be flaked or peeled of
Miscellaneous:	No change in microstructure during the process

Comparison Table

Type	Anticorrosive ability	Abrasion	Surface hardness	Adhesion	Appearance
Martensite Stainless Steel (SUS440C)	√√	√√	√√	-	Metallic lustre
Austenitic Stainless Steel (SUS316L)	√√	√	•	-	Metallic lustre
Chrome Plating (Cr)	√	√√	√√	√√	Metallic lustre
Nickel Plating (Ni)	√√	√	√	X	Metallic lustre
Raydent Treatment (R)	√√	√√	√√	√√	Blackish
					√√ - Excellent, √ - Good, • - Not Bad, X - Bad

Key benefits for linear systems

- Corrosion resistance comparable to 316 stainless suitable for most environments.
- No dimensional change to maintain bearing performance.
- Can be used for ball bushes, ballscrews and profile rail.
- Maintains hardness of the substrate and bearing life not compromised.
- Can be applied to ball bushes and profile rail.
- Full chrome balls usually supplied for resistance of the rolling elements.

Note: as with all materials there is no resistance to attack from all possible chemicals. There will be chemicals that can cause corrosion of Raydent. This treatment has been shown to have excellent resistance to common industrial chemicals such as sulphuric acid, sodium hydroxide (caustic wash down) and salt (brine) environments.

Raydent treated SBC profile rail with stainless steel scrapers.

Raydent treated 63x20 ballscrew