

PetraForge® Thermal Barrier Coating TWR-222

High Reflectivity, Low Thermal Conductivity

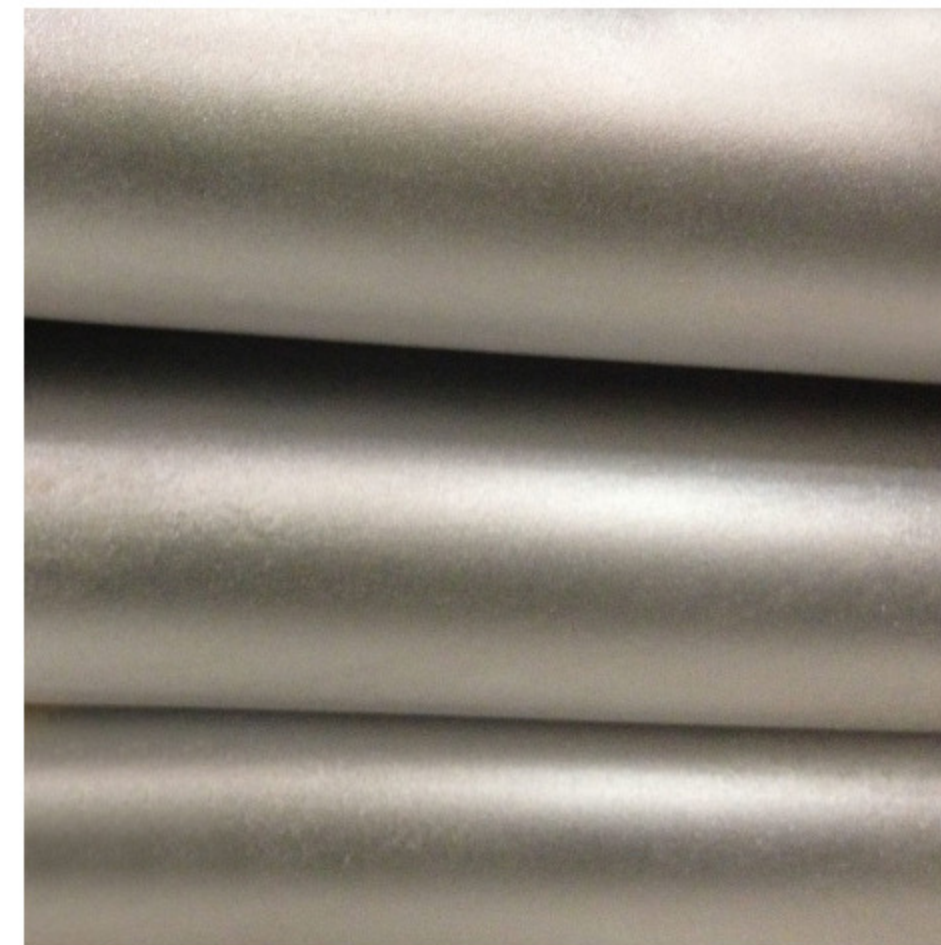
PetraForge coatings are waterborne, Zero VOC, ceramic-like coatings that combine the formulation and process versatility of a polymer coating with the physical properties of an advanced ceramic. PetraForge coatings can be applied by dipping, wet spraying, and rolling processes. The coating adheres to various substrates such as steel and glass.

Features and Benefits

- Low or High reflectivity (0.2 to 0.8 to match your needs)
- Low thermal conductivity (as low as 0.8 W/mK)
- High hardness, scratch, and abrasion resistance (20+ times greater than other coatings)
- Corrosion resistant and high chemical stability
- Modular properties: different combinations of optical, thermal, and mechanical properties can be achieved depending on the requirements of the applications

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Applications

Thermal barrier coatings, heat shield protection for energy conservation, heat sensitive components, solar cells, etc.

Technical Specifications

Property	Measured Value	Testing Method-Competitive Info
Specific Gravity (g/ml)	2.06±0.05	
Thickness (um)	140±15	Coating Thickness Gauge PCE-CT27 vs 25-30 for other coatings
Cohesion - Scratch Hardness (MPa)	85±10	ASTM C1624-05, un-failed load
Hardness (Mohs)	7±0.5	Mohs Hardness (1-10) other coatings are 2.5 typical Ex. Alum = 2.5, Stainless Steel = 4.5, Granite = 6-7
Adhesion - Bend Test (deg.)	35±5	ASTM D522M
Total Reflectivity at 400-550°C	0.7±0.03	Calculation from Blackbody FTIR (ASTM E408-13) Up to 30+% reduction in heat loss (ex. Exhaust)
Max Operating Temp (°C)	550°C	Tested in Furnace
Corrosion inhibition	>500 hours	ASTM B117 equivalent on carbon steel