PEO for Space: Black and white coatings



Keronite Black

Specifications	Details
Material composition	Inorganic metal oxide
Solar absorptance, α	0.92
Thermal emittance, ɛ	0.82
Reflectance, %	<6
Thickness, μm	10-25
Abrasion resistance	Extremely high
Adhesion	Extremely high.
Outgassing CVCM (%)	< 0.001
Outgassing RML (%)	<0.1
Molecular contamination (ng/cm2)	<6
Coating chemical content	Fully inorganic
Surface resistivity	>1x10^9 Ω/cm
Material	Al and Ti alloys
Clean ability	Can be cleaned with IPA, solvents, acetone, etc., and in short duration ultrasonic baths
Parts shape	Any shape and high degree of complexity. Sizes can vary from 0.01dm2 to 50dm2
Humidity Resistance	PASS
Certificates	ROHS, REACH, ISO 9001:2015, AS9100, Airbus specifica- tion
Temperature stability	-185°C to +180°C and up to 350°C without any degrada- tion of coating properties
Processing technique	PEO
AO, e+, UV stability	Excellent
Process under vacuum	NO
Scratch resistance	Very high
Durability	Very high

Keronite White

Specifications	Details
Material composition	Inorganic metal oxide
Solar absorptance, α	0.28 – 0.34
Thermal emittance, ɛ	0.66-0.86
Reflectance, %	65-70 in VIS
Thickness, μm	10-70
Abrasion resistance	High
Adhesion	High
Outgassing CVCM (%)	Expected similar to black (< 0.001). Not measured yet but white coating was used in BepiColombo mission
Outgassing RML (%)	Expected similar to black (<0.1). Not measured yet but white coating was used in BepiColombo mission
Molecular contamination (ng/cm2)	n/a but Expected similar to black (<6)
Coating chemical content	Fully inorganic
Surface resistivity	Expected less than black for coating with thickness less than 20um i.e. <1x10^9 Ω/cm
Material	Al alloys
Clean ability	Can be cleaned with IPA, solvents, acetone, etc., and in short duration ultrasonic baths
Parts shape	Any shape and high degree of complexity. Sizes can vary from 0.01dm2 to 50dm2
Humidity Resistance	PASS
Certificates	ROHS, REACH, ISO 9001:2015, AS9100, Airbus specifica- tion
Temperature stability	-185°C to +180°C and up to 350°C without any degrada- tion of coating properties
Processing technique	PEO
AO, e+, UV stability	Excellent
Process under vacuum	NO
Scratch resistance	High to very high depending upon thickness
Durability	Very high