



TECHNICAL DATASHEET - APS

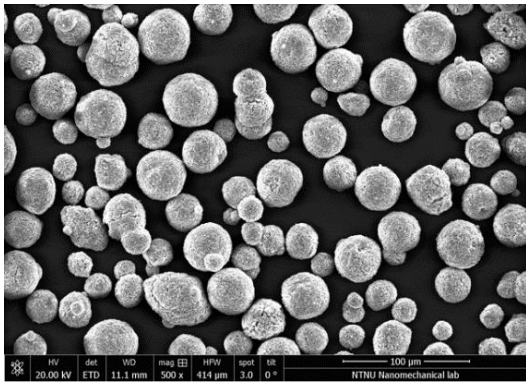
ThermaSiC® 1545 Silicon Carbide
 Agglomerated and Sintered Powder for Atmospheric Plasma Spray

Description

ThermaSiC is the world's only commercially available powder for thermal spraying of silicon carbide. It is combined with an yttria-alumina binder for plasticity and oxidation resistance during thermal spraying.

Powder Characteristics

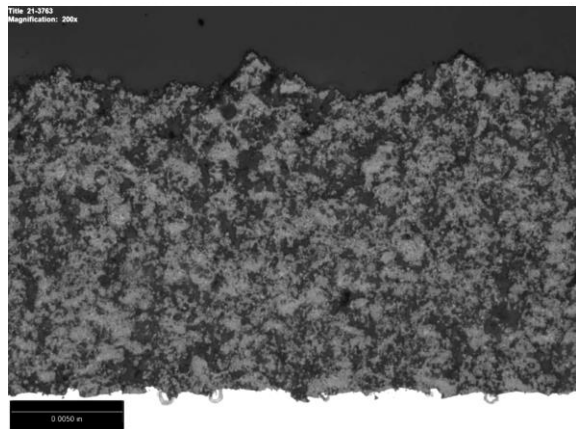
Ceramic Binder:	Yttrium Aluminum Garnet (YAG)	Morphology:	Agglomerated and Sintered
Binder Content:	~20vol.% : 25-30wt.%	Shape:	Spheroidal
Powder density:	1.1-1.6 g/cc	Size distribution:	-45µm +15µm



Typical Physical Properties of the Coating

By APS

Porosity:	15-25vol%
Porosity Type:	Connected
Microhardness:	200-400 HV0.3 864 ± 166 HV0.05
Tensile Strength:	10-15 MPa
Thermal Expansion:	~8 * 10 ⁻⁶
Thermal Conductivity:	3.6-4.2 W/m*K
Typical Thickness:	100µm to 4mm
Coating Weight:	~2.8 g/cc
Roughness as-sprayed:	7-9µm Ra
Roughness polished:	N/A



Applications

ThermaSiC is recommended for applications where high temperature, wear and/or corrosion resistance is needed. The APS coating has connected porosity, and is therefore not suited to applications where water-based corrosion resistance is needed.

It has low wetting against molten aluminum and glass, and is therefore excellent in use for protecting equipment and components exposed to such.

The APS coating can be applied to graphite and ceramics, as well as metallic substrates.

Typical industries include metallurgy, space and aviation, mainly for thermal barrier purposes. Maximum application temperature is 1400-1700°C, depending on mechanical load.

Spraying

APS Gun:	F4	Sinplex
Current:	620 A	600 A
Argon:	38 NLPM	70 NLPM
Hydrogen:	13 NLPM	6 NLPM
Spray distance:	75mm	75mm
Nozzle:	6mm	9mm
Carrier gas:	4.5 NLPM	5 NLPM
Injector:	1.8mm	2mm
Angle:	90°	90°
Voltage:	71-73 V	95-99 V
Powder feed:	15 g/min	15 g/min

Thermal spraying of ThermaSiC is recommended with F4 and Sinplex for APS. It is also possible to spray with several other guns.

ThermaSiC is ideal for thermally spraying on hard metallic substrates (steel, Inconel, cast iron, titanium etc.), but it is also possible to spray on aluminium, ceramics and graphite using specific setups and/or bond coats. Contact sales@seramcoatings.com to learn more about using different guns and substrates.

Website



Contact Us



Digital Downloads

