

## SG121FD

Low outgassing white silicone paint



Licence n° 98/CNES/0119

### ➤ Coating characteristics (1/2)

Polymer matrix	➤ Silicone
Pigment	➤ Encapsulated zinc oxide
Solvent	➤ Aromatic & aliphatic
Density	➤ 1.41 ± 0.05
Solids content	➤ 70 % ± 2 %
V.O.C.	➤ 514 g / L
Solar absorptance	➤ $\alpha_{2\pi S} = 0.20 \pm 0.02$
IR Emittance	➤ $\epsilon_{N,IR} = 0.88 \pm 0.03 @ 20^\circ C (293^\circ K)$ $\epsilon_C = 0.85 \pm 0.03 @ -193^\circ C (80^\circ K)$
Outgassing	➤ in compliance with ESA standard: ECSS-Q-70-02A
Electrical surface potential	➤ $\approx -10 V @ 25^\circ C (130 \mu m)$
Electrical surface resistance	➤ $R_s \geq 10^{12} \Omega / \square$
Standard thickness	➤ 100 to 140 $\mu m$ dry, 1 mist coat + 1 thin coat + 3 to 4 crossed coats
Theoretical Consumption	➤ 320 g / m <sup>2</sup> of product @ 120 $\mu m$ 1.87 g dry / m <sup>2</sup> and per dry $\mu m$
Surface preparation	➤ <u>On composites:</u> Crossed sandpapering, dust removal with compressed air, cleaning by rubbing with Forane 141b or equivalent, then with acetone.  <u>On light alloys:</u> Crossed sandpapering, dust removal with compressed air, cleaning by immersion or rubbing with Forane 141b or equivalent, then with acetone.  (For further information, please contact us)  Any sticking on the paint being absolutely prohibited, the sticking areas must be masked before any paint application.

### ➤ Definition

White paint providing excellent thermo-optical properties, very high resistance to particles (electrons, protons) irradiations and solar UV radiation, as well as very good performance at low temperature (-170°C).

Aspect: **mat white**

AFNOR NFT 36005 classification: Family I Class 10c.

Purpose: Developed by CNES, SG121FD paint may find applications in the following fields: space Industries, vacuum Technologies....

References: Satellites IASI, AEOLUS, SPIRALE, PICARD, HOTBIRD 7A, KOREASAT, ACM 23, GALAXY 17, INMARSAT 4, SYRACUSE 3B, RC1, COROT, DEMETER, THEOS, POSEIDON 3, ARABSAT 4, SMOS, ROCSAT 2, THAICOM 5, CHINASAT, STAR 1 C2, SIRAL, ATV.

### ➤ Properties

Test carried out	CNES qualification report
Resistance to space environment:	
Ageing tests: ATOX, UV, e <sup>-</sup> , p <sup>+</sup> ....	DTS/AE/MTE/TH/00-141 DTS/AE/MTE/TH/03-057 DTS/AE/MTE/TH/03-094
• 1 year GEO	
• 3 years GEO	
• Thermal cycling under vacuum	DTS/AE/MTE/TH/00-141
• Outgassing	DTS/AE/MTE/TH-01-102
• Electrical properties	

### ➤ Application parameters

*The application of PSX or PSW primer is prerequisite\*.*

SG121FD paint is delivered in two components which must be mixed perfectly before use. Mix the base first, under mechanical mixing, at medium speed then add the hardener. Mix the two components then add SG121FD thinner to get the right viscosity.

For information only:

Spray gun: KREMLIN J4, Nozzle 12, AM head, gravity alimentation  
 Output: 4 turns, oval jet  
 Pressure: 2 bars  
 Vector gas: Compressed air

\* In order to know which primer(s) to use according to your substrate (PSX, PSW, PS, PHOSMAP 11 primers ...), please contact us.

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### ➤ Coating characteristics (2/2)

Base/hardener weight ratio	➤ 86 / 14
Thinner	➤ About 15% of SG121FD thinner
Filtration	➤ 80 µm nylon filter
Viscosity	➤ 16s to 20s AFNOR cup 4 @ 20°C 23s to 33s ISO cup 4 21s to 26s ASTM cup 3
Pot life	➤ 2h @ 20°C
Applying conditions	➤ 18°C ≤ T° ≤ 25°C 40 % ≤ RH ≤ 60 %
Covering time	➤ Let dry between coats until you get a mat finish
Drying conditions	➤ T° about 20°C RH about 50 %  8 days drying before any control test (adhesion, thickness, etc.)  4 weeks drying before any ageing test.

### ➤ Packaging

1Kg (0.86 Kg base + 0.14 Kg hardener)

### ➤ Storage

Up to 6 months in original unopened packaging at 20°C +/- 5°C and keep away from humidity, without altering the properties.

### ➤ Safety data

- Precautions ➤ General precautions in use for the application of paints containing solvents. Flammable product. Never handle near a flame. Store in a fresh and ventilated area.
- Labelling ➤ This preparation was classified in compliance with the directives in effect.
- Transport ➤ Please refer to our latest safety datasheet.