

## PUC

Conductive black polyurethane paint

### ➤ Coating characteristics (1/2)

Polymer matrix	➤ Polyurethane
Pigment	➤ Carbon black, graphite
Solvent	➤ Aromatic & aliphatic
Density	➤ 1.15 ± 0.05
Solids content	➤ 65 % ± 3 %
V.O.C.	➤ 504 g/L
Solar absorptance	➤ $\alpha_{2\pi S} = 0.94 \pm 0.02$
IR Emittance	➤ $\epsilon_{N,IR} = 0.81 \pm 0.04$ ➤ $\epsilon_c = 0.80$
Outgassing	➤ in compliance with ESA standard: ECSS-Q-70-02A
Electrical surface resistance	➤ $R_s = 5 \text{ k}\Omega \text{ to } 25 \text{ k}\Omega / \square$
Surface potential	➤ 0 V @ 18°C (15 keV @ 1nA/cm <sup>2</sup> ) ➤ 0 V @ 18°C (20 keV @ 5nA/cm <sup>2</sup> )
Standard thickness	➤ 50 µm to 60 µm dry, 1 mist coat + 1 crossed coat
Theoretical Consumption	➤ 130 g/m <sup>2</sup> of product @ 60 µm i.e. 1.4 g dry / m <sup>2</sup> per dry µm
Surface preparation	➤ <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.  <u>On composites:</u> Crossed sandpapering, dust removal with compressed air, cleaning by rubbing with Forane 141b or equivalent, then with acetone.  <i>(For further information, please contact us).</i>  Any sticking on the paint being absolutely prohibited, the sticking areas must be masked before any paint application.

### ➤ Definition

Black conductive thermal control paint for satellites providing good electrical and thermo-optical properties.

Aspect: **mat black**

AFNOR NFT 36005 classification: Family I Class 6a.

Purpose: developed by CNES, PUC paint may find applications in the following fields: space industries, vacuum technologies.....

Satellite references: SPOT 2, SPOT 4, COMES, ARAGATZ...

### ➤ Properties

Test carried out	CNES qualification report
Moisture test	
Thermal cycling under vacuum	
Outgassing	➤ 85/CST/DRT/SST/TH/178
Electrical properties	
Resistance to ATOX	

### ➤ Application parameters

PUC paint is delivered in two components that must be mixed thoroughly before use. Dilute the hardener first with part of PUC thinner and then mix it with the base. Finally add PUC thinner to get the right viscosity.

*For information only:*

Spray gun: **KREMLIN J3, Nozzle 12, AM head**

Output: **3.5 to 4 turns, oval jet**

Pressure: **2 to 3 bars**

Vector gas: **Compressed air**

*In order to know which primer(s) to use according to your substrate (PS primer, EPOX FD surfacer ...) please contact us.*

## ..... PUC .....

*Conductive black polyurethane paint*

### ➤ Coating characteristics (2/2)

Base/hardener weight ratio	➤ 76 / 24
Thinner	➤ 15 % to 20 % of PUC thinner
Filtration	➤ 80 µm nylon filter
Viscosity	➤ 40s to 55s AFNOR cup 2.5
Induction time	➤ 20 min to 30 min @ 20°C
Pot life	➤ 2 h @ 20°C
Applying conditions	➤ 18°C ≤ T° ≤ 25°C 30 % < RH < 80 %
Covering time	➤ Let dry between coats until you get a mat finish
Drying conditions	➤ 18°C ≤ T° ≤ 25°C 30 % < RH < 80 %

8 days drying before any control test (adhesion, thickness, etc.)

4 weeks drying before any ageing test

### ➤ Packaging

1Kg (0.76 Kg base + 0.24 Kg hardener)

### ➤ Storage

4 months in original unopened packaging between 5°C and 25°C, away from humidity.

### ➤ Safety data

Precautions ➤ General precautions in use for the application of polyurethane paints containing solvents. Flammable product. Never handle near a flame. Store in a fresh & ventilated area.

Labelling ➤ This preparation was classified in compliance with the directives in effect.

Transport ➤ Please refer to our latest safety datasheet.

*Non-contractual technical data: for your information only.  
For further information, please contact us.*

This information, based upon literature and our testing experience to date, is offered as part of our service to customers, and is intended for use by persons having technical skill, at their own discretion and risk for their own investigation and verification. We do not guarantee favourable results and we assume no liability in connection with its use. This information is not intended as a licence to operate under, or a recommendation to infringe, any patent covering any material or use.