

..... PUK

Conductive black polyurethane paint



➤ Coating characteristics (1/2)

Polymer matrix	➤ Polyurethane
Pigment	➤ Carbon black
Solvent	➤ Aromatic & aliphatic
Density	➤ 1.00 ± 0.05
Solids content	➤ 49 % ± 3 %
V.O.C.	➤ 566 g/L
Solar absorptance	➤ $\alpha_{2\pi S} = 0.97 \pm 0.04$
IR Emittance	➤ $\epsilon_{N,IR} = 0.91 \pm 0.03$
Outgassing	➤ in compliance with ESA standard: ECSS-Q-70-02A
Electrical surface resistance	➤ $R_s < 5 \text{ M } \Omega / \square$ (under vacuum)
Standard thickness	➤ 50 μm to 70 μm dry, 1 mist coat + 1 to 2 crossed coats
Theoretical Consumption	➤ 150 g/m ² of product @ 60 μm 1.23 g dry / m ² 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. <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, PUK paint may find applications in the following fields: space industries, vacuum technologies.....

Satellite references: TELECOM 2 - AMAZONAS - SYRACUSE 3B - GALAXY 17 - ARABSAT 4 - SPIRALE - AEOLUS - ROCSAT 2 - SKYNET 5 - CHINASAT - ATV - BSAT3 - JCSAT11 - MEASAT1R - SKYNET5 - NICOMSAT - PLEIADES - POSEIDON3 - SIRIUS4 - SYPERBIRD7 - THOR2 - ASTRA1K - HOTBIRD7 - HERSHELL - PLANK.

➤ Properties

Test carried out CNES qualification report

Thermal cycling under vacuum ➤ NT -99-143/DTS/AE/MTE/TH
 Outgassing

➤ Application parameters

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

For information only:

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

Output: **2.5 to 3 turns, semi oval jet**

Pressure: **2 to 3 bars**

Vector gas: **Compressed air**

In order to know which primer(s) to use according to your substrate (PHOSMAP 11 primer ...) please contact us.

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➤ Coating characteristics (2/2)

Base/hardener weight ratio	➤ 75 / 25
Thinner	➤ 15 % to 20 % of PUK thinner
Filtration	➤ 80 µm nylon filter
Viscosity	➤ 13s to 17s AFNOR cup 4
Induction time	➤ 15 min to 20 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 (0.75 Kg base + 0.25 Kg hardener)

➤ Storage

6 months in original unopened packaging at 20°C +/- 5°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.

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