Technical data sheet: RA 150
Creation: February 1988
Revision: n° 14
Date: 05/05/2008
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MAP AERO STATIC B

White antistatic polyurethane paint

cnes

Licence n°84/CNES/6304

Coating characteristics (1/2)

Polymer matrix	Polyurethane
Pigment	Titanium dioxide and metallic oxides
Solvent	Esters and aromatic hydrocarbures
Density	1.82 ± 0.05
Solids content	72.5 % ± 3 %
V.O.C.	651 g/L
Solar absorptance	$\alpha_{2\pi S}$ = 0.42 ± 0.04
IR Emittance	$\varepsilon_{N,IR}$ = 0.85 ± 0.04
Outgassing	in compliance with ESA standard: ECSS-Q-70-02A
Electrical surface potential	R_S = 1 to 100 MΩ/□
Limit operating temperature	+ 150°C
Standard thickness	30 µm to 50 µm dry, 1 crossed coat
Theoretical Consumption	120 g/m² of product @ 30µm i.e. 2.8 dry g /m² per dry µm

Please refer to our enclosed specific instructions for use

Surface preparation	Perfect cleaning (contact us)	
Base/hardener weight ratio	88 / 12	
Thinner	20 % to 35 % of PM thinner	
Viscosity	16s to 20s AFNOR cup 4 14s to 18s DIN cup 4 21s to 35s ISO cup 4	
Filtration	80 µm nylon filter	
Induction time	15 min to 30 min @ 20°C	
Pot life	2h @ 20°C	
Applying conditions	18°C ≤ T°≤ 25°C The surface temperature must be at least 3°C > the dew point to avoid any condensation. 40% ≤ RH ≤ 70%	
Tack free	1h to 1h30	T° @ 20°C
Dry to handle	4h to 6h	RH @ 50 %

Definition

Applied on composites (epoxy glass, epoxy carbon, Kevlar) or metallic alloys, this antistatic paint allows the evacuation of static charges, while contributing to the thermal control of the launcher. It guarantees electromagnetic transparency (AMDBA report 17.274 from 26.11.85). MAP AERO STATIC B complies with CNES PM 4043 & CEAT aeronautic specifications (M6575100 report).

Aspect: Satin mat white

AFNOR NFT 36005 classification: Family I Class 6a.

Purpose: this paint may be used in the space industry (launchers), electronics or oil industry.

References: launchers ARIANE IV, ARIANE V, VEGA…..

Properties

Test carried out	Report
- Chemical & mechanical	CEAT M 6575100
- Outgassing - Thermo-optical properties - Damp heat - Thermal cycling	CNES 85/CST/DRT/SST/TH/190

Application parameters

MAP AERO STATIC B is delivered in two components to mix thoroughly before use. Add PM thinner to get the right viscosity.

For information only:

Spray gun: KREMLIN SKM 18, Nozzle 14, N2 head
Output: 2.5 turns, oval jet
Pressure: 2.5 bars
Vector gas: Compressed air

Packaging

1 Kg (0.88 Kg base + 0.12 Kg hardener)
5 kg (4.40 kg Base + 0.60 kg hardener)

Storage

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

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Société Anonyme à Directoire et Conseil de Surveillance au capital de 1 500 000 €
RCS Foix B 334 860 525 - SIRET 334 860 525 00032 - NAF 243Z - TVA N° FR20 334 860 525

Revêtements et peintures pour l'espace et la haute-technologie

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Specific instructions for the application of MAP AERO STATIC B antistatic paint

❶ *The sprayed air must be dried and degreased*

❷ *Conditions for the application and the drying of any antistatic paint*

Normal drying, in a ventilated room:
- *Temperature of air and surface: 18°C to 25°C*
- *Relative humidity (RH): 40 % to 70 %*

The curing may be accelerated as follows:
- *solvents evaporation: 6 h to 8 h under above mentioned conditions.*
- *heating : 14 h @ 50°C and RH = 50 % to 60 %*
- *drying for 2 h minimum, under normal drying conditions, before any control.*

❸ *Before the application of any antistatic paint, primers and surfacers must be perfectly applied and cured, as mentioned in the corresponding technical data sheets*

Minimum curing time:
- *24 h @ 20°C and 50 % RH*
- *48 h to 72 h if these conditions are not as favourable*

FOR YOUR INFORMATION:

Application on dielectric surfaces:
- *20 to 30 µm of MAP AERO P*
- *30 to 50 µm of MAP AERO STATIC B*

Application on metallic alloys:
- *8 to 10 µm of MAP AERO WP*
- *20 to 30 µm of MAP AERO P*
- *30 to 50 µm of MAP AERO STATIC B*

❹ *Instructions for use*

- Perfectly mix the base first to obtain a homogeneous product:
- *about 3 min for a mechanical mixing*
- *about 5 min for a manual homogenization*

- Progressively add the hardener into the base, while mixing slowly, then clean the hardener can with PM thinner to collect the whole product. Thoroughly mix both components together, as mentioned above.

- Progressively add the required percentage of PM thinner to get the right viscosity: *16 s to 20 s AFNOR cup no 4.*
☞ Equivalences: *14 s to 18 s DIN cup no 4*
21 s to 35 s ISO cup no 4

Viscosity is a very important factor in order to get the right properties.

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Let the mixing stand for 15 to 30 min, according to climatic conditions, and filter it through a 80 µm nylon filter; for instance:

- 15 min if T° about 25°C and RH > 50 %
- *30 min if T° about 18°C and RH < 50 %*

❺ *Application process*

For your information, you can use a KREMLIN SKM18 spray gun (nozzle 14, head N2, pressure 2.5 bars and output 2.5 turns).
Apply with a pneumatic spray gun 1 crossed coat of 30 to 50 dry µm (i.e. 50 to 90 humid µm).
During the application, you must get a smooth and glossy aspect, which becomes mat when the solvents evaporate.

❻ *Pot-life*

The pot-life is about 2 h for a quantity of 1 Kg @ 20°C and 50 % RH. However, it can be reduced if:

- *the temperature is > 20°C*
- *RH is > 50 %,*
- *the quantity of mixing is > 1 Kg.*

At the end of the pot-life, the electrical surface resistance increases very fast and remains > 150 MΩ/□.

☞ *As a precaution, we recommend you not to exceed 1 h 30, once the components are mixed*

❼ *Electrostatic control*

The parts to be controlled must be stored under controlled conditions (temperature between 18°C and 25°C ; RH between 40 % & 70 %) during 24 h minimum and the tests must be carried out under the same conditions.

The electrical surface resistance can be checked at least 5 days after the application (at 20°C & 50% RH). In the case of a lower temperature or hygrometry, wait for 1 week. It must be between 1 & 1000 MΩ/□, when measured with a megohmmeter, which electrical voltage is under 500 V and equipped with SR2 head, according to DIN standard no 65181.

At this stage, the curing has begun but is not finished yet. The electrical surface resistance will continue to decrease slowly in the following months, until it reaches a asymptotic value between 1 & 100 MΩ/□, when measured with CORAS in R1.

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

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