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Creation: November 1989
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MAP AERO STATIC B9

Antistatic white polyurethane paint

cnes

Licence n°84/CNES/6304

Coating characteristics

Polymer matrix	Polyurethane	
Pigment	Titanium dioxide & Metallic oxides	
Solvent	Aromatic hydrocarbons & esters	
Density	1.82 ± 0.05	
Solids content	72.5 % ± 3 %	
V.O.C.	593 g / L	
Solar absorptance	$\alpha_{2\pi s}$ = 0.65 ± 0.04	
IR Emittance	$\varepsilon_{N,IR}$ = 0.91 ± 0.01	
Outgassing	In compliance with ESA standard ECSS-Q-70-02A	
Electrical surface resistance	R_S = 0.1 to 1000 MΩ/□ on cellular foam according to MAP std 008/AQ/92/NI for 60 g to 110 g dry / m²	
Standard thickness	20 µm to 35 µm dry, 2 crossed coats (let dry the solvents between coats)	
Theoretical Consumption	110 g/m² of product @ 25 µm 3.1 g dry /m² per dry µm	

Please refer to our enclosed specific instructions for use

Surface preparation	Dusting of cellular foam	
Base / hardener weight ratio	88 / 12	
Thinner	13 % to 18 % of PM thinner	
Viscosity	16s to 20s AFNOR cup 4	
Induction time	15 min to 30 min (1 kg blend)	
Filtration	80 µm nylon filter	
Pot life	1h30 @ 20°C (1 kg blend)	
Applying conditions	18 °C ≤ T°≤ 25°C 40 % ≤ HR ≤ 70 %	
Tack free	1 h to 1.5 h	T° @ 20°C
Dry to handle	4 h to 6 h	RH @ 50%

Definition

Antistatic white polyurethane paint allowing the evacuation of electrostatic charges while contributing to the thermal control of launchers.

Aspect: satin-mat white
AFNOR Classification NFT 36005: Family I Class 6a.

Purpose: MAP AERO STATIC B9 paint has been developed to be applied on cellular substrates such as H920A cellular foam. It allows the evacuation of ectrostatic charges.

In compliance with PM 4043CNES specification

CRYOSPACE supplying specification:
AS-SA-121-1043-CSP Ed.1 - Rev .2 from 02/07/93

References: launcher ARIANE V

Properties

Test carried out	CNES report
Thermal test on H920A cellular foam Electrical test Outgassing	89/TE/AE/MT/TH n° 213

Application parameters

MAP AERO STATIC B9 is delivered in 2 components to mix thoroughly before use. Add PM thinner to get the right viscosity.

For your information only:

Spray gun: KREMLIN SKM18, Nozzle 14, N2 head
Output: 1 turn ¾, oval jet
Pressure: 2 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, away from humidity.

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.

map@map-coatings.com
www.map-coatings.com

MAP - ZI Rue Clément Ader - 09100 PAMIERS (France) Tél. : 33 5 34 01 27 00 - Fax : 33 5 61 60 28 77
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 the antistatic polyurethane white paint MAP AERO STATIC B9

❶ *The sprayed air must be dried and degreased*

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

For a normal drying, in a ventilated room:

- *Temperature of air and surface: 18°C to 25°C*
- *Relative humidity (RH): 40 % to 70 %*

❸ *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: 16s to 20s AFNOR cup no 4.

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

If need be, let the mixing stand for 15 min to 30 min, according to the room temperature and filter it through a 80 µm nylon filter.

for instance, for 1 Kg blend:

- *15 min @ 25°C*
- *30 min @ 18°C*

Above 5 Kg blend, do not exceed 15 min induction time.

❹ *Application process*

Apply 2 crossed coats of 20 to 35 dry µm with a pneumatic spray gun ; you must apply the second crossed coat like the first one, under the condition that you respect an interval of 15 min between the 2 coats to let the solvents evaporate.

For your information, you can use a KREMLIN SKM18 spray gun (nozzle 14, head N2, pressure 2.0 bars and output 1.75 turns).

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ISO 9001 BUREAU VERITAS Certification

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❺ *Pot-life*

The pot-life is about 2 h for a quantity of 1 Kg @ 20°C and 50 % RH.

Nevertheless it can be reduced if:

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

it is not recommended to apply at the end of the pot-life as the electrical surface resistance increases very fast.

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

❻ *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 48 h minimum and the tests must be carried out under the same conditions.

The electrical surface resistance can be checked 5 days after the application (at 20°C & 50% RH). In the case of a lower temperature or hygrometry, you may wait for 1 week.

The surface electrical resistance must be between 0.1 & 1000 MΩ/□ on H920A cellular foam *when measured with a megohmmeter, which electrical voltage is under 500 V according to internal standard 008/AQ/92/NI.*

At this stage, the curing has begun but is not finished yet. The electrical surface resistance will continue to decrease slower and slower in the following months, until it reaches a asymptotic value.

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