



8.445.XXXX-AJA (class 1) and 9.445.XXX-AJA (class 2) SERIES

Anti-graffiti powder coatings



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TO OILY SUBSTANCES

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Anti-graffiti Powder Coatings

1. PRODUCT FEATURES

The Anti-graffiti powder 8.445.XXXX-AJA (Class 2 variant: 9.445.XXXX-AJA) feature a high resistance to grime and stains. Thanks to their special formulation, the products coated with this powder are protected from permanent inks, which on standard powders would leave marks or halos even after cleaning with specific detergents: Anti-graffiti powder coating make instead writing removal very easy.

All these powders are suitable for sublimation and have typically a smooth, glossy surface.

2. TECHNICAL INFORMATION

TECHNICAL DATA

Chemical nature	Polyurethane
Finish	Smooth glossy
Class of resistance	Class 1
Yield in surface/mass	13,1 m ² /Kg
Specific weight	1,27 ± 0,03 g/cm ³

APPLICATION METHODS AND CURING CONDITIONS

Powder available for corona charging application.

Curing time and temperature:

- 25 minutes at 195°C – 383°F (metal temperature).
- 20 minutes at 200°C – 392°F (metal temperature).
- 15 minutes at 205°C – 401°F (metal temperature).

Recommended thickness: 60-80 micron.

The use of recycling powder must be carried out under controlled and repetitive conditions.

● MECHANICAL PROPERTIES

Test	Standard Reference	Result
Buchholz	ISO 2815	ok
Cross-cut	ISO 2409	no loss of adhesion; ok
Impact 2,5 N*m	ISO 6272	ok
Bending	ISO 1519	no detachment; ok
Salt spray	ISO 9227	corrosion <4 mm; ok

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3. AVAILABLE OPTIONS:

- Transparent or matt colored surface;
- Super durable, Class 2;
- Low curing;
- Antimicrobial.

4. POSSIBLE USAGE AND APPLICATIONS

The Anti-graffiti series 8.445.XXXX-AJA provides a reliable solution for surfaces subject to soiling (street furniture, public spaces, etc.), but also for objects which are more likely to get ink stains during their usage, as worktops, tabletops, and so on. Thanks to anti-graffiti powders it is possible to easily remove unpleasant marks and keep surfaces clean.



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Anti-graffiti Powder Coatings

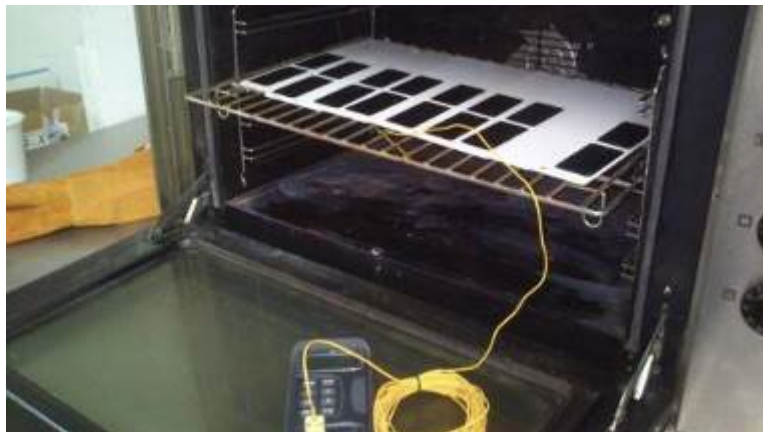
5. ANTI-GRAFFITI TEST

The anti-graffiti properties of this series are tested according to the international standard **UNI 11246**, which establishes the methods and the procedures to determine the resistance to contamination.

Here below some of the steps outlined by the standard:



Soiling



Drying of the staining agents



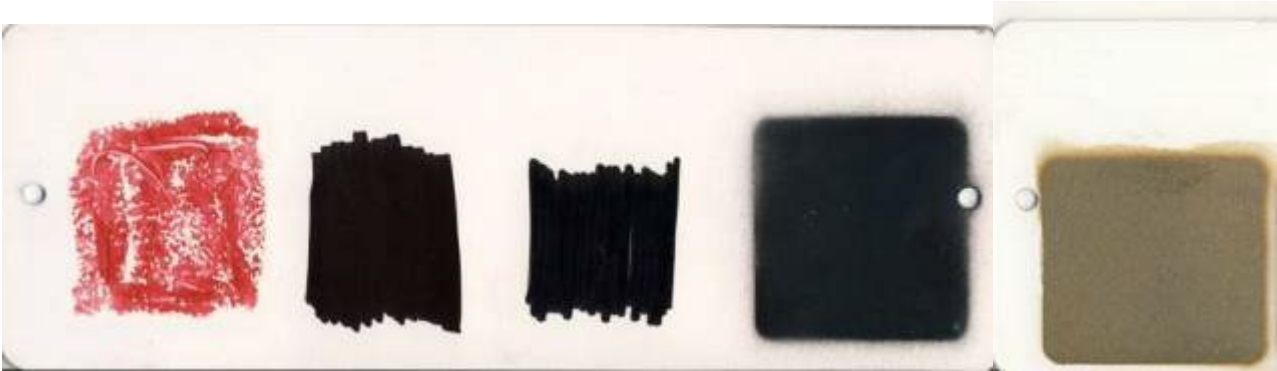
Cleaning

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Anti-graffiti Powder Coatings

The test was performed by removing staining agents with the most suitable cleaning product.

Anti-graffiti 9.445.0001-AJA (top coat on white base)
soiled with the tested staining agents



LIPSTICK

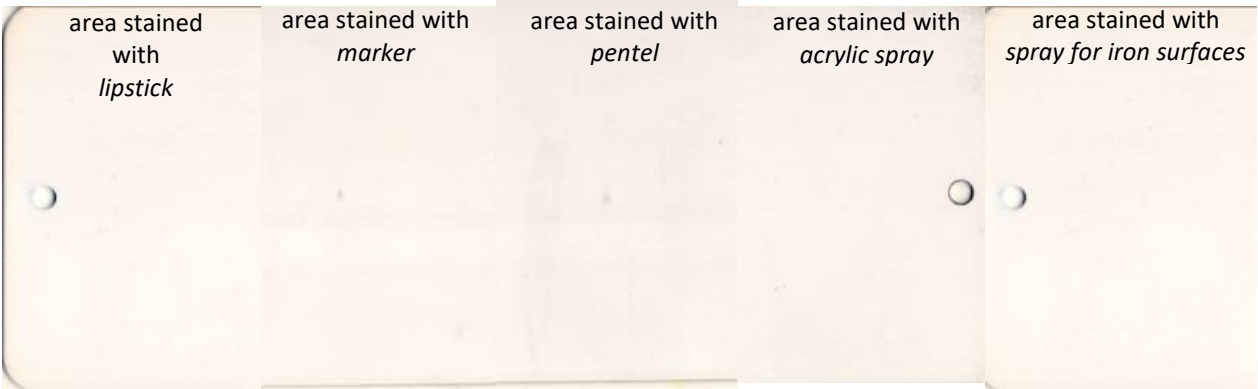
MARKER
permanent ink

N50 PENTEL
permanent ink

SPRAY
acrylic

SPRAY
for ferrous surfaces

After the removal of staining agents with different types of cleaning products



Excellent cleaning
with ethyl alcohol
and with
etasol/MEK*

Excellent
cleaning
with
etasol/MEK*

Excellent
cleaning
with
etasol/MEK*

Excellent
cleaning
with ethyl
alcohol

Excellent
cleaning
with
etasol/MEK






* mix 70:30 of etasol:methylethylketone

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Anti-graffiti Powder Coatings

• EFFECTIVENESS OF THE CLEANING PRODUCTS DEPENDING ON THE TESTED STAINING AGENTS

9.445.0001-AJA (transparent top-coat on white base PE 411)

CLEANING PRODUCTS	STAINING AGENTS				
					
	<i>LIPSTICK</i>	<i>MARKER permanent black marker</i>	<i>N50 PENTEL permanent black marker</i>	<i>SPRAY Acrylic matt</i>	<i>SPRAY for ferrous surfaces</i>
<i>ETH. ALCOHOL</i>	V	X	X	V	X
<i>ETASOL/MEK</i>	V	V	V	X	V

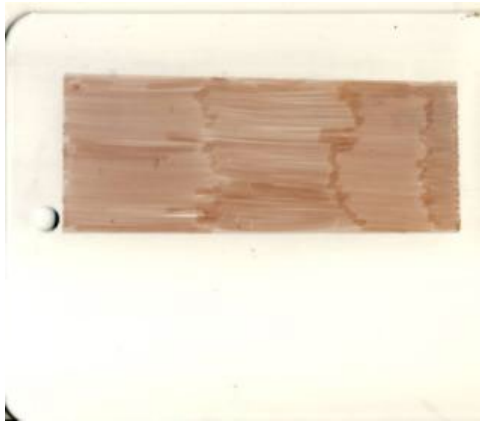
White polyester

CLEANING PRODUCTS	IMBRATTANTI				
					
	<i>LIPSTICK</i>	<i>MARKER permanent black marker</i>	<i>N50 PENTEL permanent black marker</i>	<i>SPRAY Acrylic matt</i>	<i>SPRAY for ferrous surfaces</i>
<i>ETH. ALCOHOL</i>	X	X	X	X	X
<i>ETASOL/MEK</i>	X	X	X	X	X

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Anti-graffiti Powder Coatings

• COMPARISON BETWEEN A STANDARD POWDER COATING AND ANTI-GRAFFITI



Standard polyester product
Stained with N50 Pentel and cleaned with
etasol/MEK



Anti-graffiti 9.445.0001-AJA (top coat on white base PE411)
stained with N50 Pentel and cleaned with etasol/MEK
after 10 staining/cleaning cycles
 ΔE : 0,96; Residual gloss: 100%

6. ANTI-GRAFFITI TEST WITH COLORED POWDERS

The anti-graffiti properties were tested by soiling some sample panels painted with 9.445.3858-AJA (colored powder suitable for sublimation) and others painted with PU powder in RAL colours.

This test included the following stages:

- Soiling with: lipstick, marker, N50 pentel, black acrylic spray;
- Drying of staining agents in an oven at 80°C (176°F) for 120';
- Conditioning, at 23°C (73.4°F), for at least 120' with 50% relative humidity;
- Removal of staining agents with commercial ethylic alcohol;
- Removal of staining agents with a mixture of etasol/MEK 70:30.

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Anti-graffiti Powder Coatings

Test on 9.445.3858-AJA



ABOVE: Panel painted with 9.445.3858-AJA soiled with the tested staining agents.

BELOW: Panel painted with 9.445.3858-AJA after the cleaning with commercial ethylic alcohol.







ABOVE: Panel painted with 9.445.3858-AJA soiled with the tested staining agents.

BELOW: Panel painted with 9.445.3858-AJA after the cleaning with a mixture of etasol/MEK 70:30.

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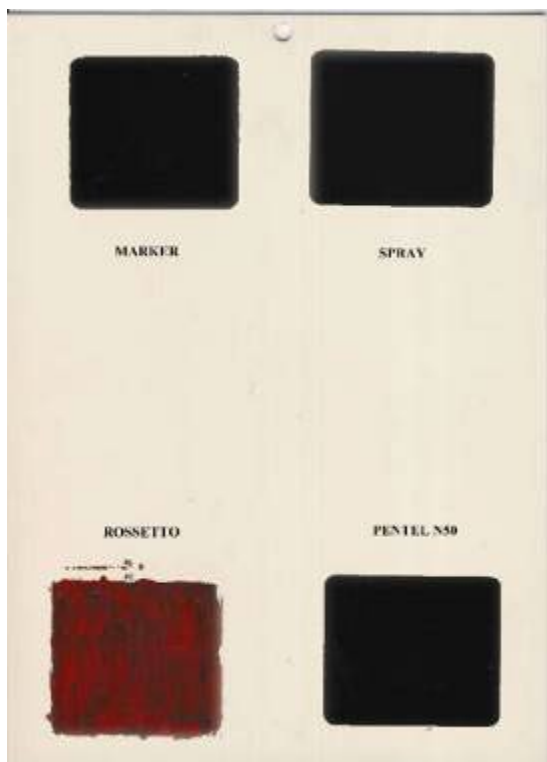
Anti-graffiti Powder Coatings

Effectiveness of cleaning products depending on the staining agents tested on 9.445.3858-AJA

CLEANING PRODUCTS	STAINING AGENTS			
				
	<i>LIPSTICK</i>	<i>MARKER permanent black marker</i>	<i>N50 PENTEL permanent black marker</i>	<i>SPRAY Acrylic matt</i>
<i>ETH. ALCOHOL</i>	V	V	X	V
<i>ETASOL/MEK*</i>	V	V	V	V
	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with etasol/MEK*	Excellent cleaning results with ethylic alcohol

*mixture etasol:methylethylketone 70:30

Test on a sample panel painted with 8.445.3313-AJA (PU Smooth Ivory Antigraffiti "RAL 1013")



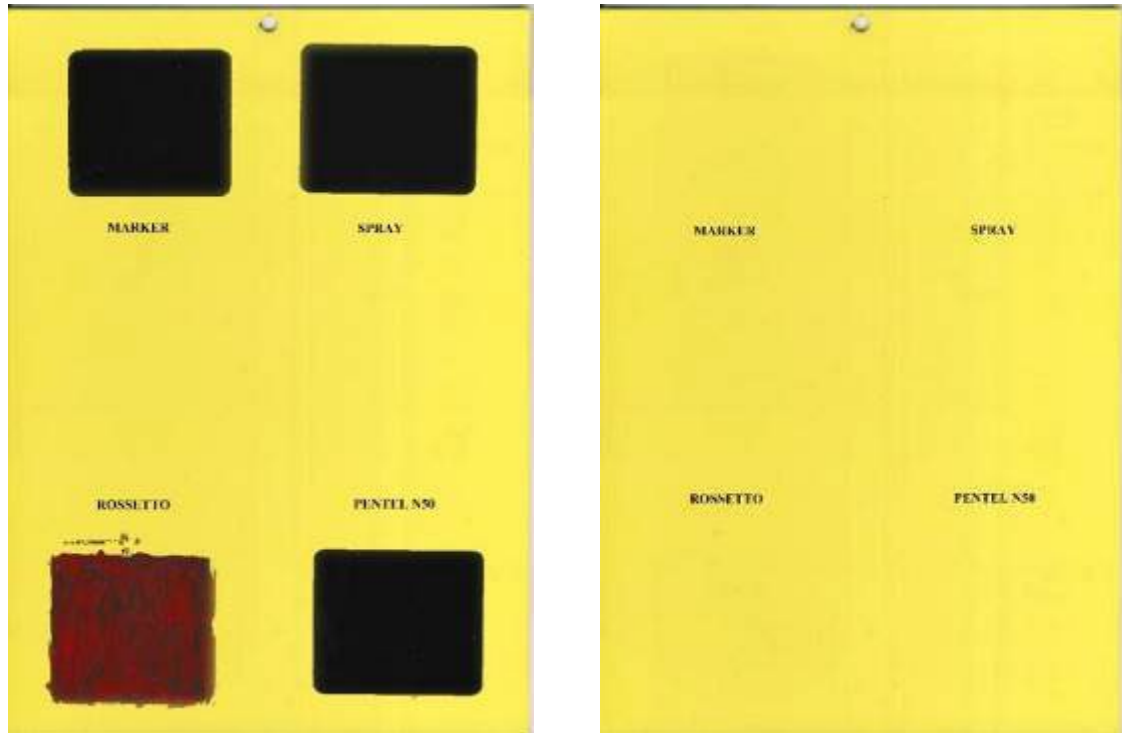
LEFT: Sample panel painted and soiled.

RIGHT: Painted sample panel after the cleaning with a mixture of etasol/MEK 70:30.

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Anti-graffiti Powder Coatings

Test on a sample panel painted with 8.445.2118-AJA (PU Smooth Yellow Antigraffiti “RAL 1018”)



LEFT: Sample panel painted and soiled.

RIGHT: Painted sample panel after the cleaning with a mixture of etasol/MEK 70:30.

Test on a sample panel painted with 8.445.3803-AJA (PU Smooth Brown Antigraffiti “RAL 8003”)



LEFT: Sample panel painted and soiled.

RIGHT: Painted sample panel after the cleaning with a mixture of etasol/MEK 70:30.

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Anti-graffiti Powder Coatings





Test on a sample panel painted with 8.445.6629-AJA (PU Smooth Green Antigraffiti "RAL 6029")



LEFT: Sample panel painted and soiled.

RIGHT: Painted sample panel after the cleaning with a mixture of etasol/MEK 70:30.

Effectiveness of the cleaning products depending on the staining agents tested on PU ANTIGRAFFITI powders in RAL 1013, 1018, 8003, 6029

CLEANING PRODUCTS	STAINING AGENTS			
				
	<i>LIPSTICK</i>	<i>MARKER permanent black marker</i>	<i>N50 PENTEL permanent black marker</i>	<i>SPRAY Acrylic matt</i>
<i>ETH. ALCOHOL</i>	V	V	V	X
<i>ETASOL/MEK*</i>	V	V	V	V
	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with etasol/MEK*	Excellent cleaning results with ethylic alcohol

*mixture etasol:methylethylcheton 70:30

8.445.XXXX-AJA (class 1) and 9.445.XXX-AJA (class 2) SERIES

Anti-graffiti Powder Coatings

The anti-graffiti properties were also tested by soiling some sample panels painted with 6.445.8716-SJA. This test included the following stages:

- Soiling with lipstick, marker, N50 pentel, acrylic spray;
- Drying of staining agents in an oven at 80°C (176°F) for 120';
- Conditioning, at 23°C (73.4°F), for at least 120' with 50% relative humidity;
- Removal of staining agents with commercial ethylic alcohol;
- Removal of staining agents with a mixture of Etasol/MEK 70:30.

Test on 6.445.8716-SJA



ABOVE: Sample pannel painted and soiled





8.445.XXXX-AJA (class 1) and 9.445.XXX-AJA (class 2) SERIES

Anti-graffiti Powder Coatings



ABOVE: Painted Sample Panel after the cleaning with a mixture of Etasol/MEK 70:30

Effectiveness of cleaning products depending on the staining agents tested on 6.445.8716-SJA

CLEANING PRODUCTS	STAINING AGENTS			
				
	<i>LIPSTICK</i>	<i>MARKER permanent marker</i>	<i>N50 PENTEL permanent marker</i>	<i>SPRAY Acrylic matt</i>
<i>ETH. ALCOHOL</i>	V	V	V	X
<i>ETASOL/MEK*</i>	V	V	V	V
	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with etasol/MEK*	Excellent cleaning results with ethylic alcohol

*Mixture etasol: methylethylketone 70:30

8.445.XXXX-AJA (class 1) and 9.445.XXX-AJA (class 2) SERIES

Anti-graffiti Powder Coatings

COMPARATIVE TEST BETWEEN SAMPLE PANELS PAINTED WITH PE 411 + DALÌ-001 STANDARD POWDER AND PE 411 + DALÌ-001 ANTIGRAFFITI POWDER

The anti-graffiti properties of the standard Dalì powder were compared with the “*anti-graffiti*” variant specifically formulated, by soiling two sample panels painted respectively with PE 411 + Dalì-001 and PE 411 + Dalì-001 “*Anti-graffiti*” with several staining agents. This test included the following stages:

- Soiling with: lipstick, marker, N50 pentel, black acrylic spray;
- Drying of staining agents in an oven at 80°C (176°F) for 120’;
- Conditioning, at 23°C (73.4°F), for at least 120’ with 50% relative humidity;
- Removal of staining agents with commercial ethylic alcohol;
- Removal of staining agents with a mixture of etasol/MEK 70:30.

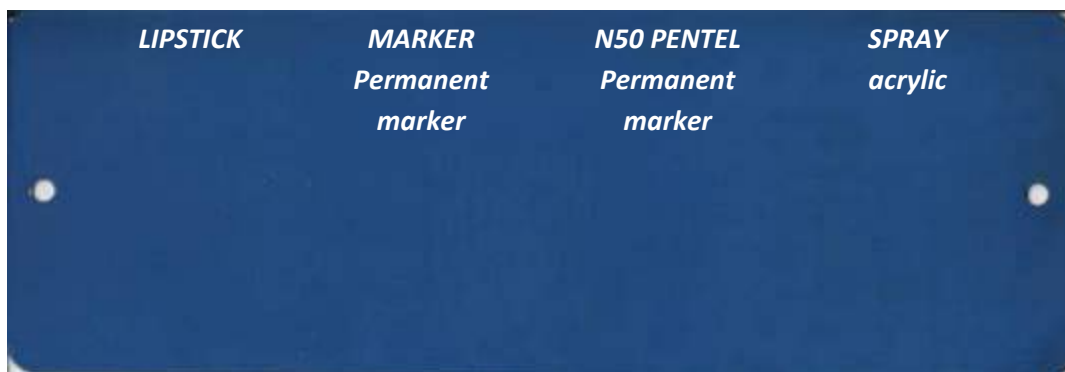


As shown in the picture above, after the cleaning with commercial alcohol and then with a mixture of etasol/MEK 70:30, the sample coated with PE 411 + Dalì-001 still has traces of staining agents (pentel N50) and marks on the surface previously stained. Instead, the sample coated with PE 411 + Dalì-001 Anti-graffiti has kept its initial aspect.




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Anti-graffiti Powder Coatings

Test on a sample panel painted with 8.455.7519-SJA (PU SMOOTH Blue Antigraffiti "RAL 5019")



Effectiveness of the cleaning products depending on the staining agents tested on PU ANTIGRAFFITI powder in RAL 5019

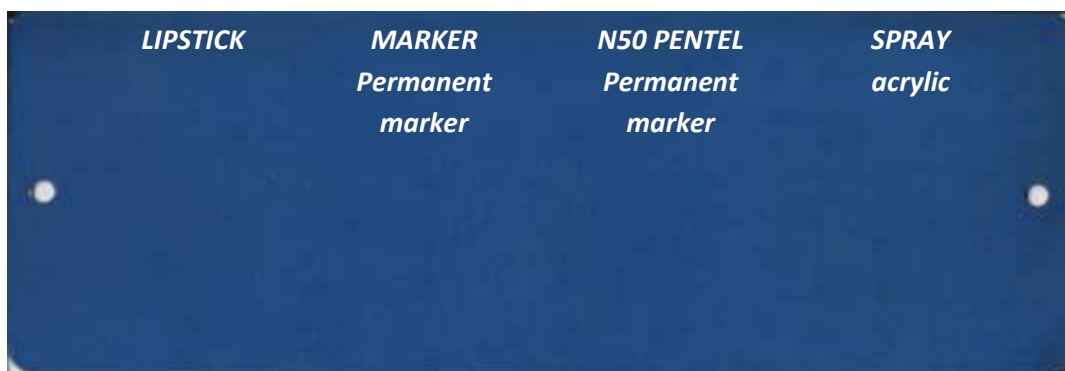
CLEANING PRODUCTS	STAINING AGENTS			
				
	LIPSTICK	MARKER Permanent marker	N50 PENTEL Permanent marker	SPRAY Acrylic matt
ETH. ALCOHOL	X	V	V	X
ETASOL/MEK*	V	V	V	V
	Excellent cleaning results with etasol/MEK*	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with etasol/MEK*	Excellent cleaning results with etasol/MEK*

* miscela 70:30 di etasol:metiletilchetone





8.445.XXXX-AJA (class 1) and 9.445.XXX-AJA (class 2) SERIES

Anti-graffiti Powder Coatings

Test on a sample panel painted with 8.455.7519-SJA (PU EMBOSSED Blue Antigraffiti "RAL 5019")



Effectiveness of the cleaning products depending on the staining agents tested on PU ANTIGRAFFITI powder in RAL 5019

CLEANING PRODUCTS	STAINING AGENTS			
				
	<i>LIPSTICK</i>	<i>MARKER Permanent marker</i>	<i>N50 PENTEL Permanent marker</i>	<i>SPRAY Acrylic matt</i>
<i>ETH. ALCOHOL</i>	X	V	X	X
<i>ETASOL/MEK*</i>	V	V	V	X
	Partial cleaning with etasol/MEK*	Excellent cleaning results with ethylic alcohol	Excellent cleaning results with etasol/MEK*	Insufficient cleaning with etasol/MEK*

*miscela 70:30 di etasol:metiletilchetone

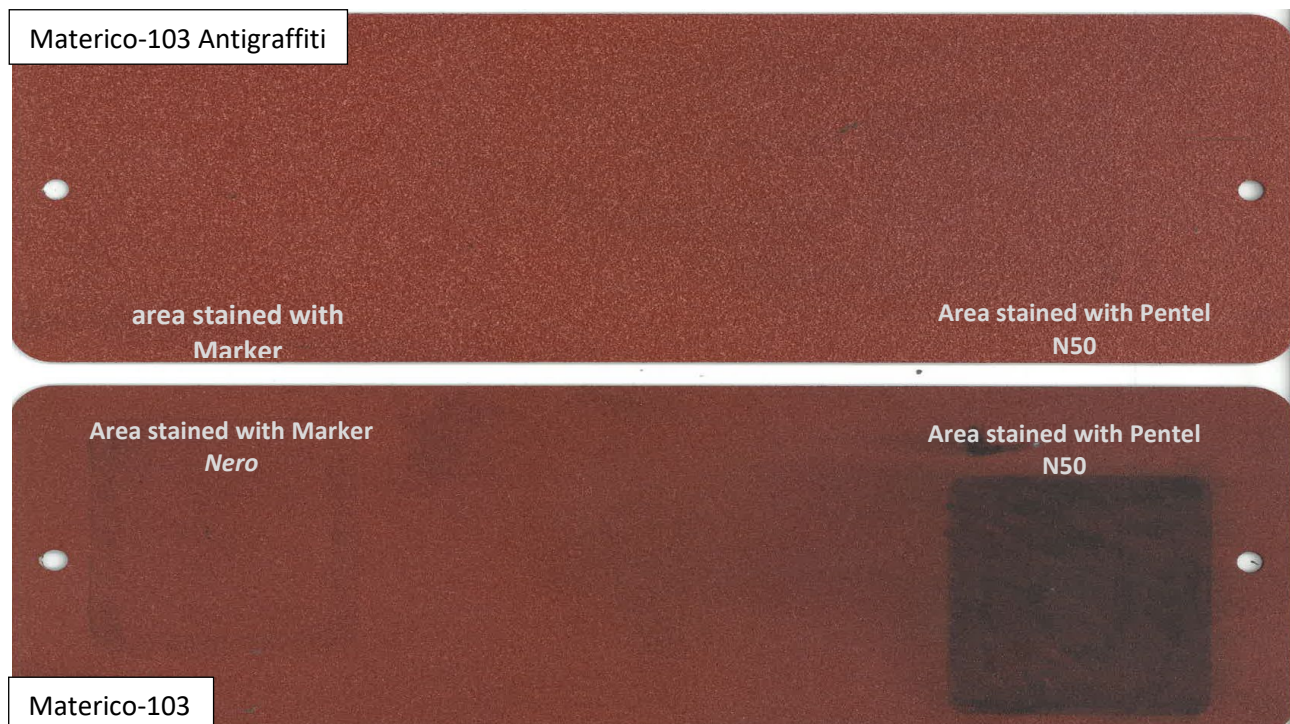
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Anti-graffiti Powder Coatings

Comparative test between sample panels painted with Materico-103 and Materico-108 and Materico-103 Antigraffiti and Materico-108 Antigraffiti

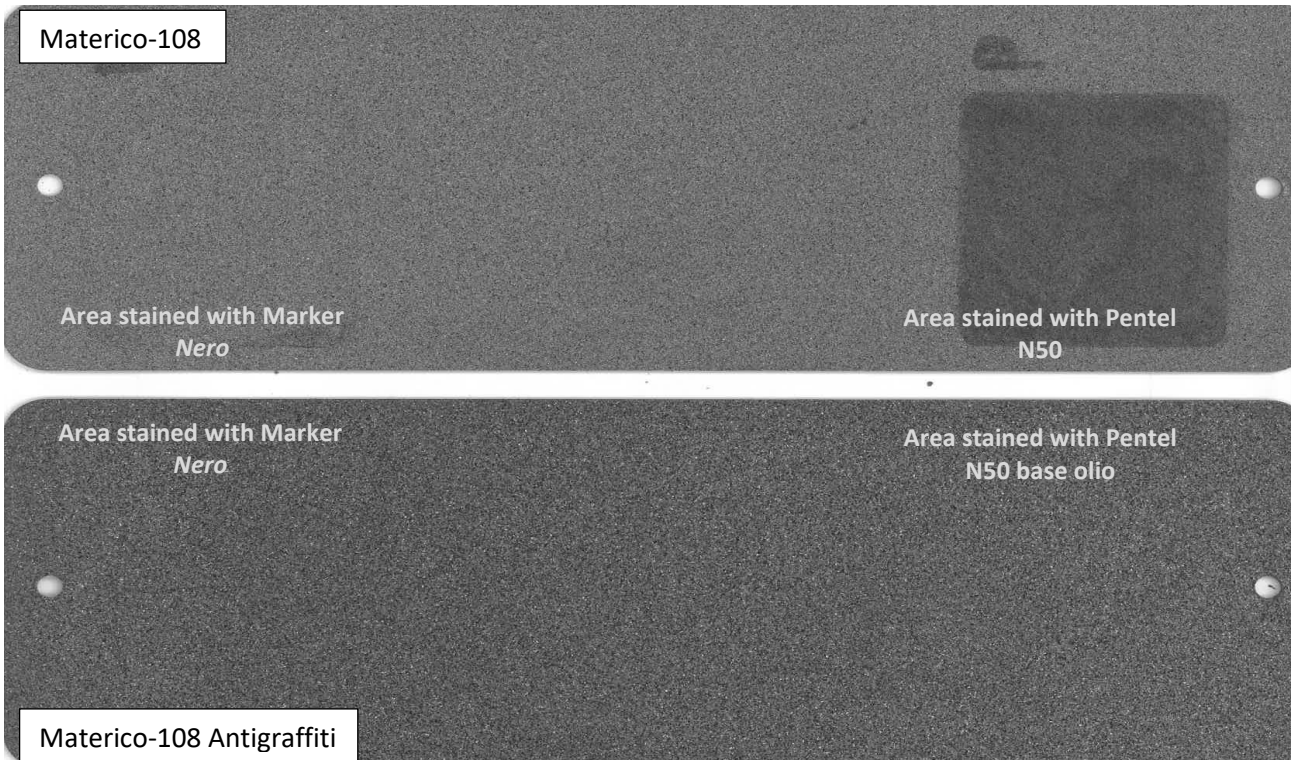
The powders of the “Materico” series have a particular highly texture surface, which is harder to clean. We have decided to test the anti-graffiti properties of the standard “Materico” powder compared with the “*anti-graffiti*” variant specifically formulated, by soiling two sample panels painted respectively with Materico-103 and Materico-108 and Materico-103 “*Anti-graffiti*” and Materico-108 “*Anti-graffiti*” with several staining agents. This test follows the following stages:



- Soiling with: marker, N50 pentel;
- Drying of staining agents in an oven at 80°C (176°F) for 120’;
- Conditioning, at 23°C (73.4°F), for at least 120’ with 50% relative humidity;
- Removal of staining agents with commercial ethylic alcohol;
- Removal of staining agents with a mixture of etasol/MEK 70:30.



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Anti-graffiti Powder Coatings



CLEANING PRODUCTS	STAINING AGENTS	
		
	MARKER permanent black marker	N50 PENTEL permanent black marker
	ETH. ALCOHOL	X
ETASOL/MEK	V	V
	Excellent cleaning results with ethyl alcohol	Excellent cleaning results with etasol/MEK*

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Anti-graffiti Powder Coatings

7. RESISTANCE TO CHEMICALS

Anti-graffiti series resistance to chemicals has been tested. The first test was carried out by pouring 1 ml of commercial acetone* on the surface of a sample coated with *PE411 + DS-0810SA*; after 10 seconds the solvent was removed with a soft cloth. The test was simultaneously performed on a standard white polyester.

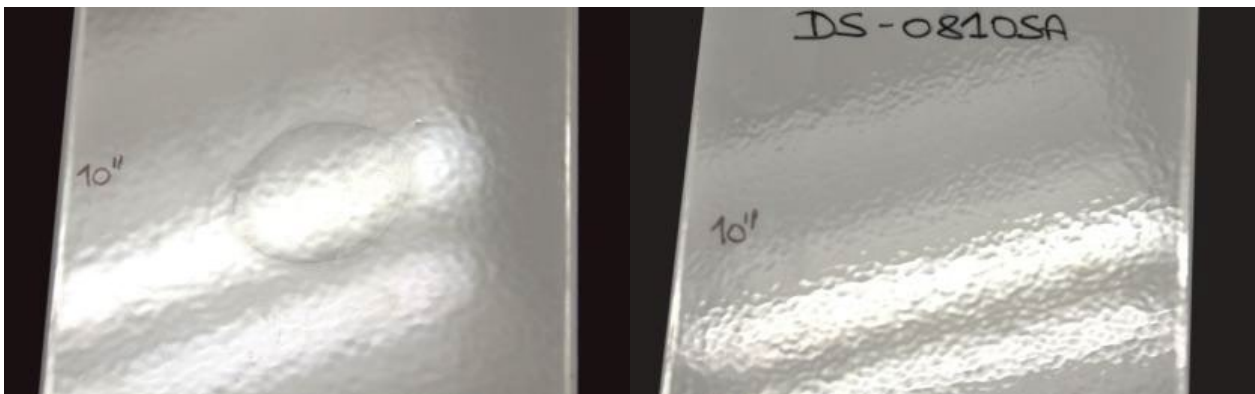
*mix 90:10 of acetone: water



Commercial acetone

The test has shown how a standard powder coating lose gloss when it comes in contact with aggressive solvents like acetone, leaving a mark on the area previously stained and thus damaging the surface of the sample.

On the contrary, the sample coated with the *anti-graffiti* product *DS-0810SA* has remained totally unchanged, without loss of gloss and stains, thus giving proof of its exceptional resistance to aggressive solvents.



Standard polyester: it is possible to see the stain left by acetone

Anti-graffiti product: the solvent has left no stains

* mix 90:10 acetone: water

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Anti-graffiti Powder Coatings

The second test aimed at ascertaining the surface resistance of anti-graffiti class 2 powders to oily substances. The test has been carried out on the following samples:

- PE 411 + 9.445.0001-AJA
- PE 411 + 9.665.0001-AJA
- PE 411 + 9.645.0001-AJA

By using the following substances:

- brake fluid;
- engine oil;
- transmission fluid;
- coolant;
- power steering fluid;
- petrol;
- diesel.

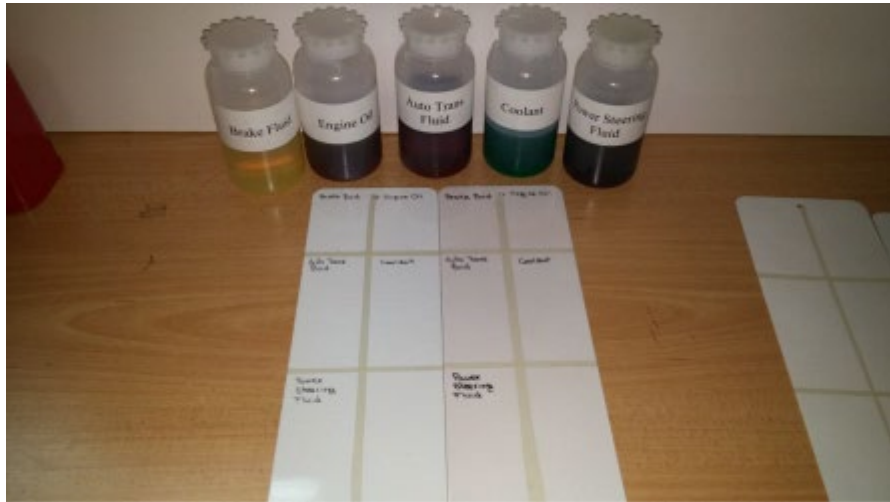


Oily substances

8.445.XXXX-AJA (class 1) and 9.445.XXX-AJA (class 2) SERIES

Anti-graffiti Powder Coatings

1. Each sample has been divided into different areas, upon which has been put a few drops of the oily substances listed above



Sample preparation



Sample preparation

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Anti-graffiti Powder Coatings



Sample preparation

2. All the substances were allowed to react for one hour. After one hour the sample was washed with soap and water and subsequently visually evaluated.



Sample cleaning

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Anti-graffiti Powder Coatings



Sample cleaning

	PE411+DS- 9.445.0001-AJA	PE411+ 9.665.0001-AJA	PE411+ 9.645.0001-AJA
BRAKE FLUID	OK	OK	OK
COOLANT	OK	OK	OK
PETROL	MARK	MARK	MARK
DIESEL	OK	OK	OK
TRANSMISSION FLUID	OK	OK	OK
ENGINE OIL	OK	OK	OK
POWER STEERING FLUID	OK	OK	OK

CONCLUSION

After one hour, the exposure to oily substances has not caused damages to any of the 3 categories of class 2 *anti-graffiti* powders. The products are very efficient against this kind of staining agents. Concerning fuel, instead, they are efficient against diesel but not against gasoline. Indeed, this last leaves a mark which cannot be removed even by cleaning.

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Anti-graffiti Powder Coatings



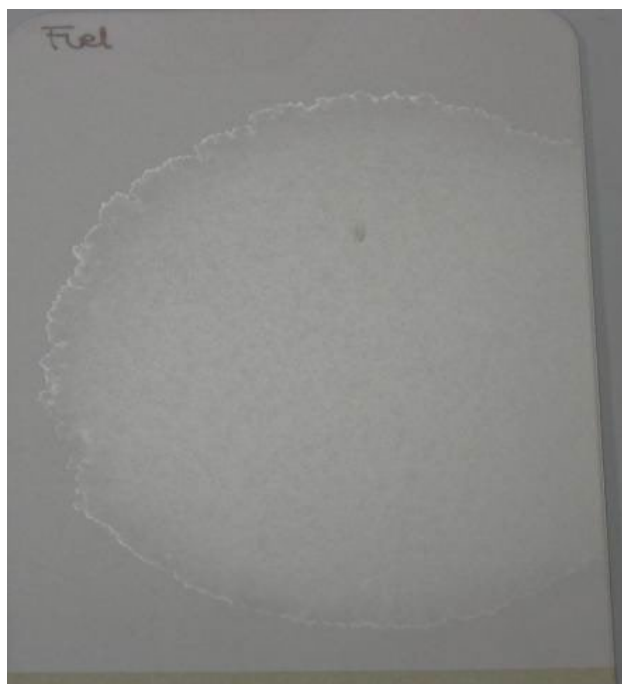
Results: on the left PE 411+9.665.0001-AJA, in the middle PE 411+9.645.0001-AJA, on the right PE 411+9.445.0001-AJA

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Anti-graffiti Powder Coatings



Results: on the left PE 411+9.665.0001-AJA, on the right PE 411+9.645.0001-AJA, below PE 411+9.445.001-AJA



WARNING

We advise the client to consult Decorallab technical department before purchasing or using Anti-graffiti powders and before removing the staining agent.

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