Decoral System®

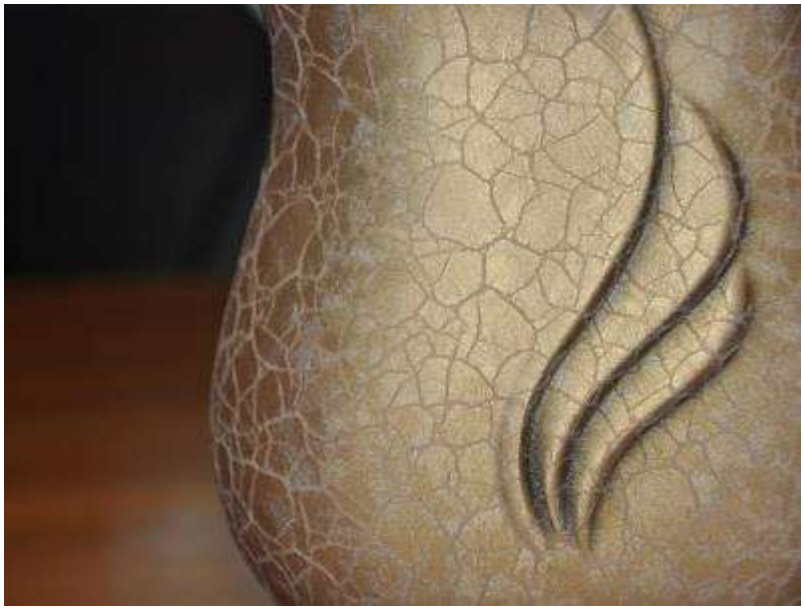
TECHNICAL TOOLS

Laboratory Tests and Technical Documentation

MRK-012-0022rev3

SALTLAKE-XXX

Powder-coatings
with special surface



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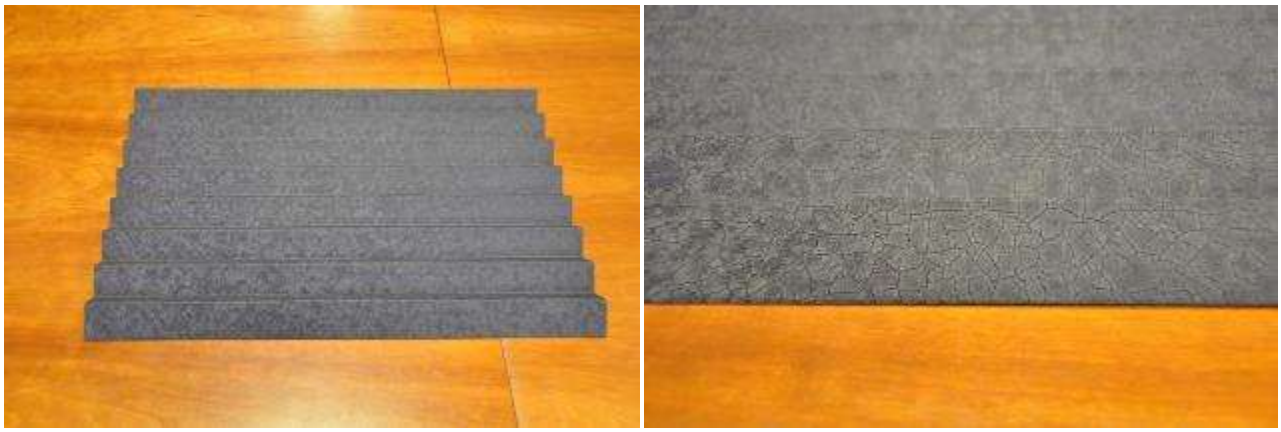
SALTLAKE

Powder-coatings with special surface

1. Product features

What makes *Saltlake* powders unique is their surface: special additives indeed allow the formation of small ripples all over the surface like a decorative motif, resulting in a very peculiar effect.



Metal sheet decorated with Saltlake-001; on the right, a closer view of the *Saltlake* effect

2. Technical information

- Technical data

Powder type	Modified polyurethane
Class resistance	Class 1 (suitable for outdoor use)
Yield (in surface/mass)	9,3 m^2/Kg
Specific weight	1,27 ± 0,03 g/cm^3

- Application and curing cycle

Available for corona charging.

Curing time and temperature:

- 30 minutes at 190°C (metal temperature).
- 25 minutes at 195°C (metal temperature).
- 20 minutes at 200°C (metal temperature).

Recommended thickness: 120 microns – yield 6.53 m^2/Kg

- Mechanical properties

Test	*Standard reference*	*Result*
Buchholz hardness	ISO 2815	ok
Cross-cut	ISO 2409	no loss of adhesion; ok
Bending	ISO 1519	no loss of adhesion; ok
Salt spray	ISO 9227	corrosion <4 mm; ok

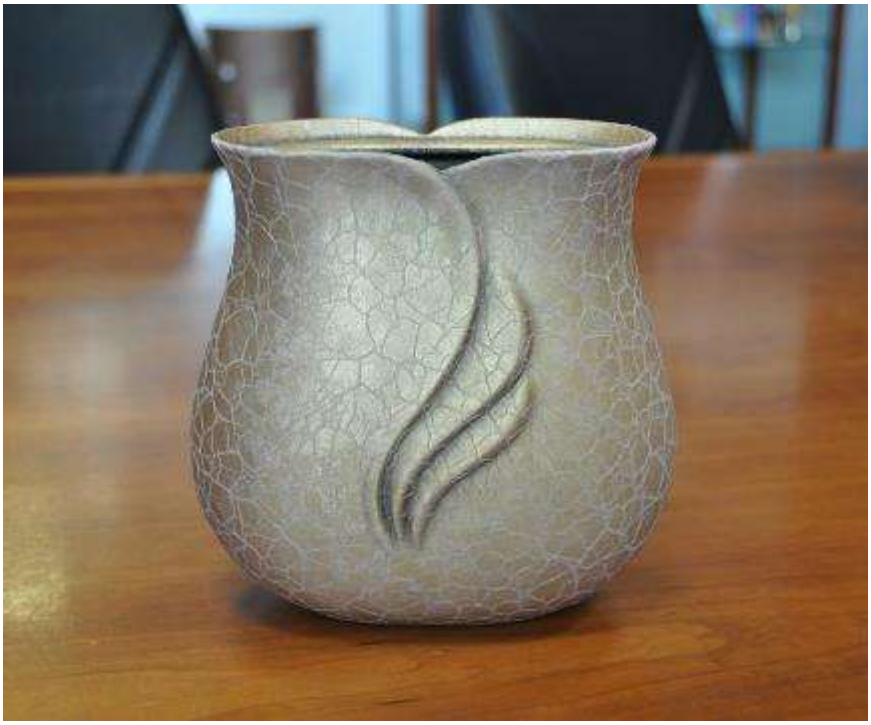
3. Variants and special formulations

Variants of this series are available: it is possible to produce it

- Matching RAL references;

- Sublimable version;

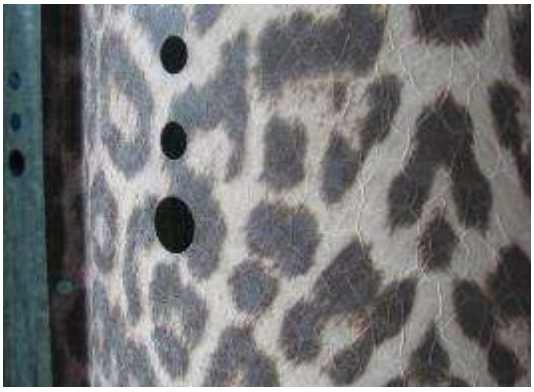
- Low-cure.



Tridimensional object coated with Saltlake-025.

4. Sublimable version: *Sublisaltlake*

The sublimable version of the *Saltlake* powders grants an even wider range of creative solutions: by matching the characteristic surface of these powder-coatings with the colors and motifs of the heat-transfer films we can afford extremely original results.



Saltlake-028 + heat-transfer film 6036/01

Saltlake-028 + heat-transfer film 76048/07

5. Low-cure version: *Saltlake-1XXX*

For this series of powders, a low-curing version is available, which allows to carry out completely the Saltlake effect at lower temperatures and/or in a shorter time.

Curing conditions for Saltlake-1XXX:

- 30 minutes at 175°C (metal temperature).

- 25 minutes at 185°C (metal temperature).

- 20 minutes at 190°C (metal temperature).

This variant allows the following advantages:

- Energy saving;

- Possible use with every kind of oven, since the same curing conditions of standard polyester powders are required;

- Possible application on objects made of *Zama* and other materials that at 200°C – 392°F (curing temperature of standard Saltlake powders) could give surface defects.

6. Tests on the *Saltlake* effect

Tests have been performed to determine under which conditions the Saltlake effect is regularly obtained.

Temperature gradient

The temperature gradient is a relevant factor for the powder coating in terms of the resulting aspect.
Several gradients have been tested on this series of powders to determine which is the limit of increase to obtain a correct Saltlake effect.
The temperature was controlled with thermal probe (metal temperature).

Gradient limit: **1,76 °C/s - 105,6 °C/min**.

Higher increases, i.e. high temperatures reached faster than this, may result in an inhomogeneous effect.

Saltlake-001 cured with a gradient of 105,6 °C/min. The surface is slightly less "wrinkled", but the effect is homogeneous and has formed correctly.

Very small gradients have been tested as well (down to 0,07°C/s – 3,97°C/min), but no problem has been observed in terms of the final aspect.

Temperature for the formation of the Saltlake effect

The Saltlake effect has been observed *during* its formation: temperatures and times required have been registered.

Temperature of formation: **175°-185°C** (**347°F – 365°F**).
Time required: **60 seconds**.

The temperature was checked with thermal probe (metal temperature); the cross-linking has been carried out with a standard gradient of temperature.

The formation of the effect could be inhomogeneous or just partial if 185°C temperature is not exceeded.

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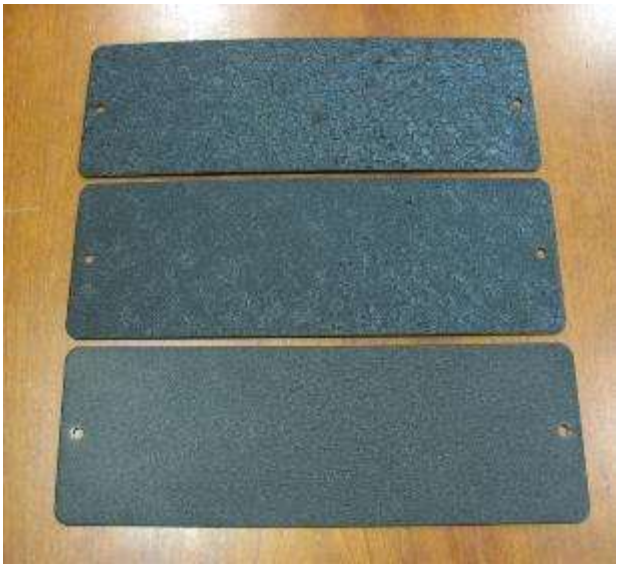
Thickness

To obtain the correct formation of the Saltlake effect on the surface to be coated it is necessary a thickness of powder equal to about 120 μm. After curing, the thickness measured will result equal or *higher* than 120 μm, due to the characteristic wrinkled surface that has formed.
Because of the special textured surface, it is recommended to determine the thickness on the average value of *at least 8 measurements* on the reference area.



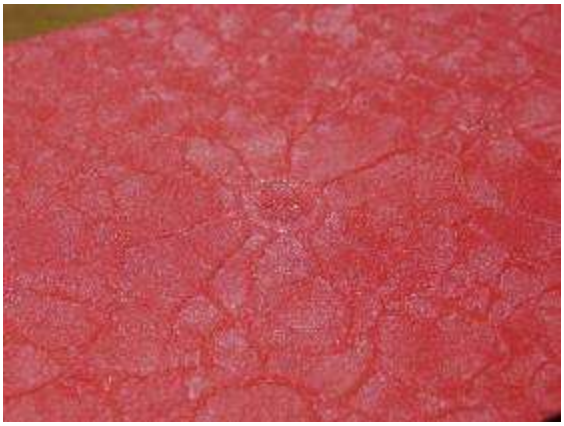
Thickness measured: **130 μm**
Correct formation of the Saltlake effect.

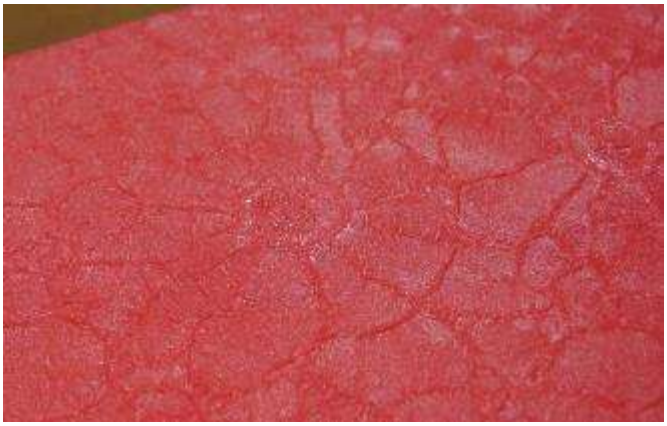
Thickness measured: **100 μm**
Incomplete formation of the Saltlake effect.

Thickness measured: **70 μm**
No Saltlake effect.

Defects

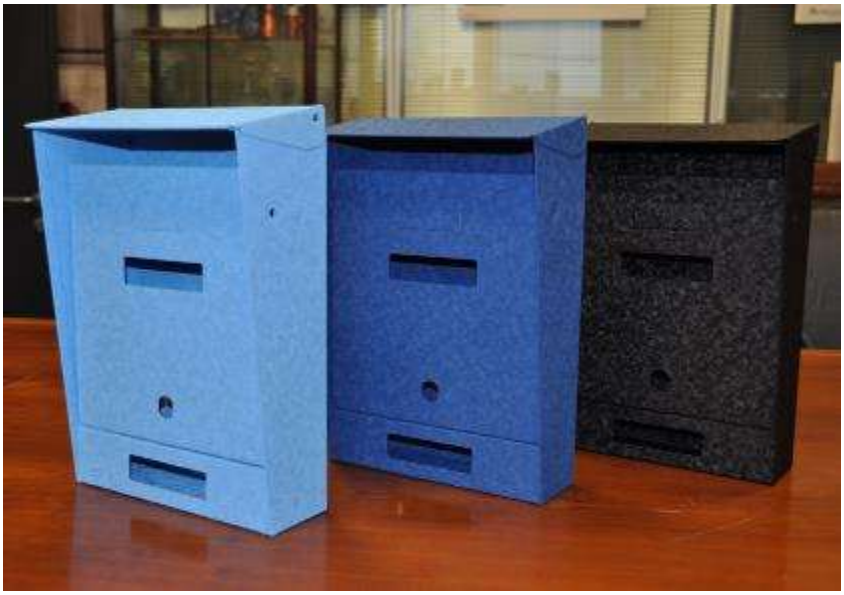
If the surface to be coated is not well clean, or if the object has not been completely degassed (for materials that require this kind of treatment), after curing we may observe defects like those shown in the picture below, that look like small craters, with a “star” pattern around it. They form where the stains were.





7. Possible usage

S*altlake* powders suit not only those applications where their very unique surface can be closely appreciated, but also those where their special way of reflecting light allows color effects that can't be obtained with other powder coatings.



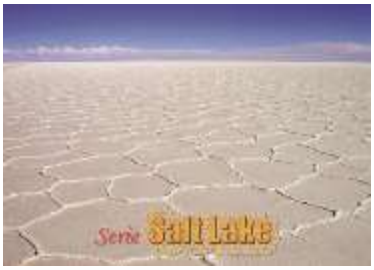
Mail-boxes decorated with (left to right) Saltlake-005, Saltlake-023 and Saltlake-001

Close view of a mail-box decorated with Saltlake-001

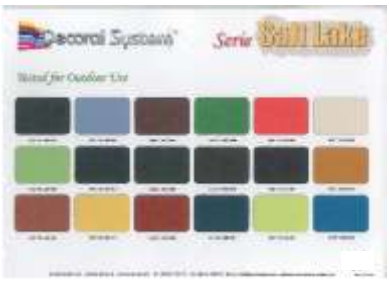
Dedicated marketing material:

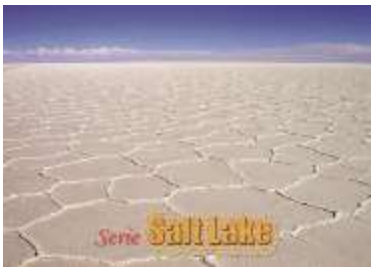
- MRK-005-0176

- MRK-005-0233



- MRK-005-0286





Test report: MRK-010-0233

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