The customers' quality requirements on industrial finishing have increased year by year. In addition to protective properties, a high-quality paint surface is currently required to have also presentability and personality, which has lead to the increase of shades in industrial painting and at the same time to stricter requirements concerning the precision of the topcoat shade.

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PHOTOS: STUDIO ZOOMI &
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Many benefits from using Colo

The primer shade influences significantly the topcoat shade especially in the yellow, orange and red colour areas. By using a primer with the correct shade under the topcoat, you can economically paint a precise topcoat shade according to the standard. By correctly selecting the primer shade, you can optimise your material costs and achieve excellent colour accuracy.

Quality management with coloured primers

Manufacturers of machinery, equipment and steel structures are using more and more subcontracting in their production processes. Unfortunately, the use of continuously expanding subcontracting chains has somewhat increased the quality costs of painting, as the shades of components supplied by various subcontractors differ from each other, so that, from a colour point of view, the painting does not meet the quality requirements of the customer.

This is not normally noticed until at the assembly stage, which – in addition to repainting costs – also results in delays in the actual deliveries. In many cases, the cause of a topcoat shade error noticed during the assembly stage is different, non-specified primer shades used by the subcontractors under the topcoat.

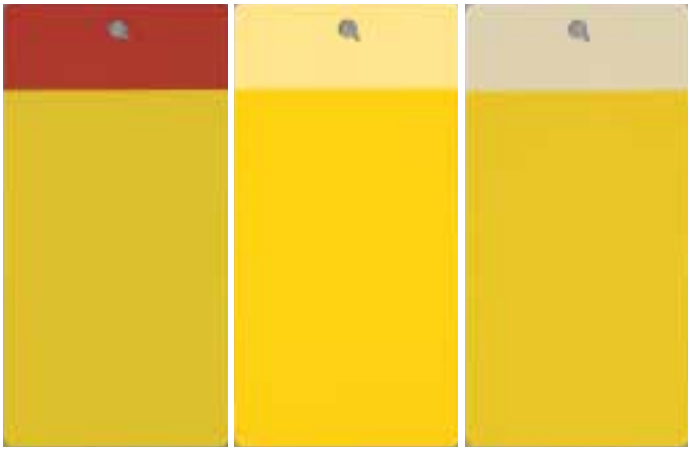
Coloured primers are a good tool for the quality management of painting. The customer should pay special attention to ensuring that also the primer shade has been specified in addition to the painting system and topcoat shade.

This simple operation not only diminishes the quality costs due to shade errors but also provides savings in material costs. With a correctly selected primer shade under the topcoat, you can also achieve better hiding on sharp edges. You should pay particular attention to selecting the primer shade, if the topcoat is from the yellow, orange or red colour areas, as the hiding power of the pigments currently used in topcoats in these colour areas is limited.

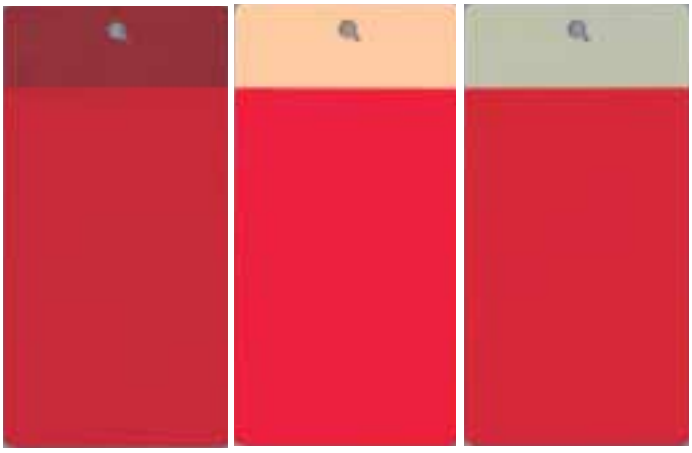
Savings in materials and process

By specifying the primer shade from the same colour area as that of the topcoat, you can achieve a high-quality finish that is uniform in shade, meets the customer's expectations and is reasonable from a cost point of view. By doing this, a colour according to the standard is achieved with the film thickness specified in the painting system.

With coloured primers, you can avoid painting excessively thick layers of topcoat and save considerable sums. The saving can be even up to 50% on the amount of topcoat. In addition to material costs, you can achieve cost efficiency, as both painting work time and drying time are shorter.



Primer shade on the panels in the picture (L to R): TVT 4000 iron-oxide red, TVT 4005 yellow and TVT 4001 grey. Topcoat shade RAL 1021 with film thicknesses (L to R): 60 µm, 40 µm and 60 µm.



In this picture, the primer shade is (L to R): TVT 4000 iron-oxide red, TVT 4007 pink and TVT 4001 grey. Topcoat shade RAL 3020 with film thicknesses (L to R): 60 µm, 40 µm and 60 µm.

With a correctly chosen primer shade (TVT 4005 and TVT 4007), you can achieve excellent colour accuracy with a film thickness of only 40 µm, whereas with the commonly used primer shades TVT 4000 and 4001, you cannot achieve acceptable shade accuracy even with a topcoat film thickness of 100 µm.

ured Primers

Well-finished appearance lasts a long time

One more reason for using coloured primers is that scratches and other surface damage that may occur on the topcoat through wear-and-tear are not so visible, because the colours of the topcoat and primer are not essentially different from each other. That is why we particularly recommend using coloured primers for machines and equipment that are vulnerable to dents and scratches.

If necessary, small chips and scratches are easy to repair using Tikkurila's Temaspray aerosol paints that are tinted by the nearest Temaspeed distributor to the colour of the topcoat. Surfaces subject to great damage and heavy corrosion stress must be repaired as soon as possible using the original paint system.

If the customer has not specified the primer shade, the painting contractor should choose a shade from the Temaspeed Primers colour card that best meets the topcoat shade. The nearest Temaspeed distributor provides coloured primers and instructions for choosing the most economical primer shade.

Choosing the primer shade

When choosing the primer shade, the best result can be achieved when attention is paid to ensuring that:

– The primer is a different colour from the substrate.
– The primer is from the same colour area as the topcoat.
– The primer shade is lighter than the shade of the topcoat. A primer darker than the topcoat may result in a cloudy impression.

In practice, only the yellow TVT 4005 or white TVT 4013 are suitable as the primer shade for a bright yellow topcoat shade, for example RAL 1021. With these shades, you can achieve a very good accuracy with a topcoat film thickness of 40 µm.

The primer shades in common use, for example the iron-oxide red TVT 4000, grey TVT 4001 and light grey TVT 4004, cannot provide an adequate shade accuracy even with a topcoat film thickness of more than 100 µm. The best choice for bright yellow topcoat is the yellow TVT 4005 primer that – in addition to lower total material cost and shade accuracy – also diminishes the visibility of any small topcoat damages.

Many benefits from using Coloured Primers

The pink TVT 4007 is the most suitable primer for bright red shades, for example RAL 3020. With this primer shade, you can achieve excellent shade accuracy with a topcoat film thickness of 40 µm and at the same time minimize the visibility of topcoat damages. With the traditional primer shades, you cannot achieve sufficient shade accuracy even with a topcoat film thickness of more than 100 µm.

In the orange colour area, there are several primer alternatives depending on the undertone of the topcoat. The pink TVT 4007 is the most suitable for reddish orange, whereas the light yellow TVT 4016 is the most suitable for yellowish orange. For slightly dirty orange, for example RAL 2010, the light grey TVT 4004 is suitable, as it provides economically very good shade accuracy with a topcoat film thickness of 40 µm.

You really should pay careful attention to choosing the primer shade. With this action, small as such, you can achieve savings of several thousands of euros on an annual level and at the same time meet the quality requirements of your customers.●

Sample calculations on the benefits of coloured primers

Example 1.
TA10-AK80/2-FeSa2½ – RAL 1021

Primer / shade		
Temaprime EUR – TVT 4000, 4001	1X	
Temaprime EUR – TVT 4005		1.25X
Required amount of primer at a dry film thickness of 40 µm	100 l	100 l
Cost	*100X*	*125X*
Topcoat / shade		
Temalac FD 80 RAL 1021	1.45X	1.45X
Required amount of topcoat	250 l *)	100 l
Cost	*363X*	*145X*
Total material costs	*463X*	*270X*

Approximately 42 % savings in material costs.

Example 2.
TP10-EPPUR120/2-FeSa2½ – RAL 3020

Primer / shade		
Temacoat GPL-S Primer – TVT 4000, 4001	1X	
Temacoat GPL-S Primer – TVT 4007		1.2X
Required amount of primer at a dry film thickness of 80 µm	100 l	100 l
Cost	*100X*	*120X*
Topcoat / shade		
Temadur 90 RAL 3020	2.25X	2.25X
Required amount of topcoat	125 l *)	50 l
Cost	*281X*	*113X*
Total material costs	*381X*	*233X*

Approximately 39 % savings in material costs.

The relative prices of the products and shades used in the examples are marked with an 'X'.

***) The minimum amount of topcoat needed to achieve a colour near to standard, but not good enough from colour accuracy point of view.**