

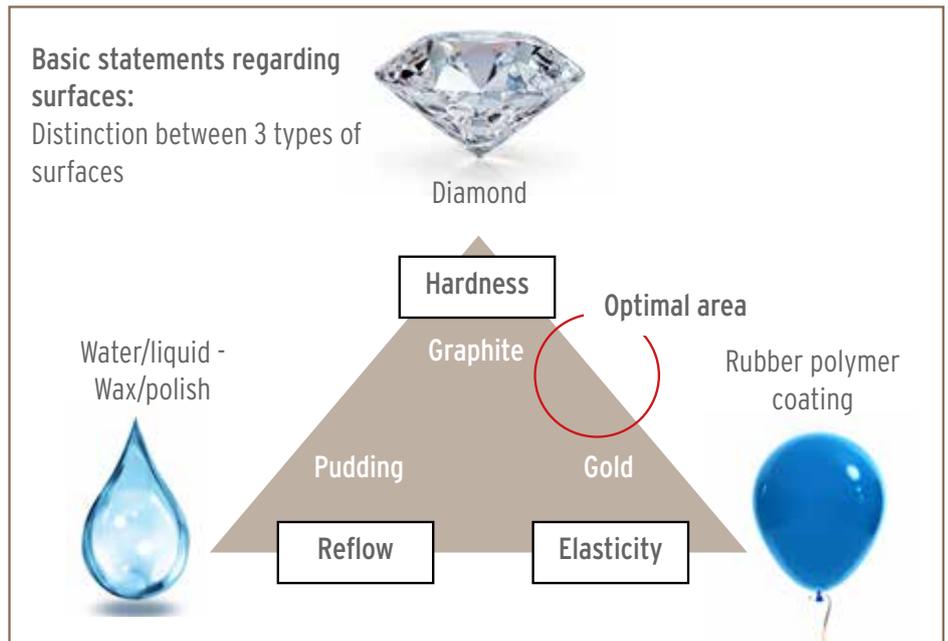
Mechanical requirements of the surface



Generally, destruction can occur on any surface. We are only pointing out some possibilities here.

- After being damaged, liquid or waxy surfaces flow back to their original shape.
- Elastic surfaces are resilient under the mechanical stress.
- Hard materials are damaged by materials which are harder than they are.

For painted surfaces, it is important to find the optimum consistency between hardness and elasticity.



Test method to determine surface hardness and scratch resistance

Erichsen hardness testing rod 318s



3 Force ranges.

- 0-3 N
- 0-10 N
- 0-20 N

4 Test geometries

- 0.75 mm (Bosch)
- 1.0 mm (ISO)
- 0.5 mm (van Laar)
- 0.5 mm (Opel)

This test was conducted with the "Bosch 0.75mm" test geometry in all 3 force ranges up to destruction.

20N then corresponds approximately to 1,000 kg on this surface.

To get an idea what forces are applied, the force exertion of 10N at a peak of 0.75 mm can be compared to a force of 500kg on a 1 cent coin.



10N => 500kg
20N => 1.000kg

Mechanical requirements of the surface



Test of various surfaces

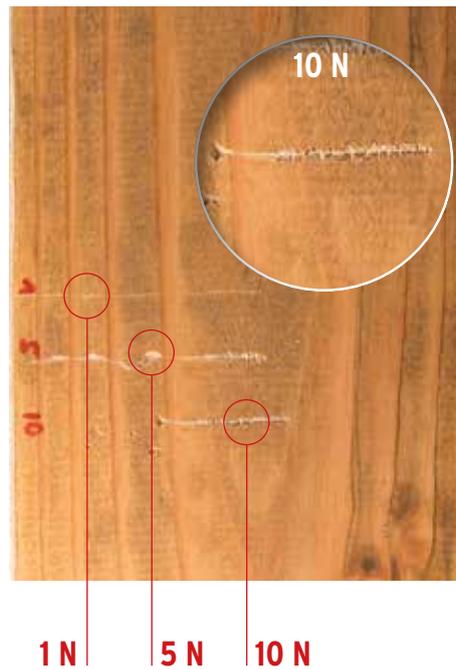
The following have been tested:

MATERIAL
Douglas fir
Thermo ash
Hardwood/tropical wood
Lacquered wood parquet (professional goods)
Various WPC materials
Resysta untreated and with glaze (FVG)
Resysta with standard 2K lacquer
Resysta with UV 2K lacquer
Resysta oiled

Various woods

Douglas fir

Deep scratches, tearing of the structure/fragmentation



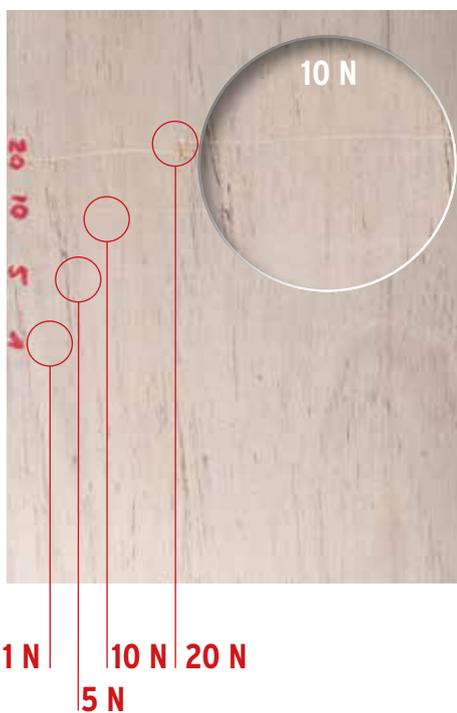
Thermo ash

Deep scratches, partial tearing of the surface/fragmentation



Layer hardwood

Medium to deep scratches



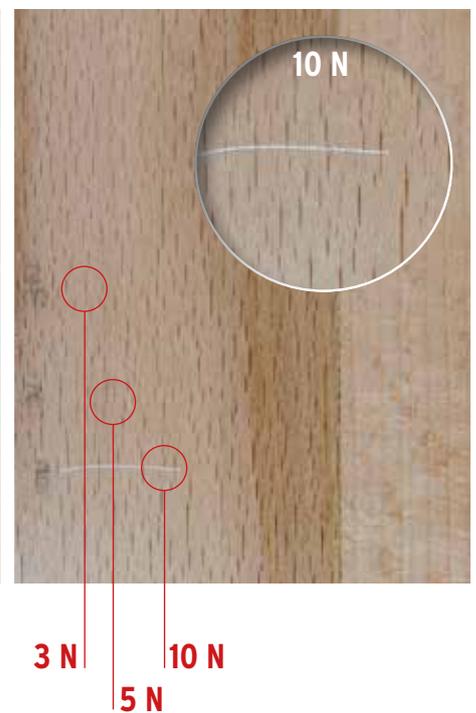
Bankirai

Medium to deep scratches



Lacquered parquet

Destruction of the lacquer layer even at 10N, deep scratches



Mechanical requirements

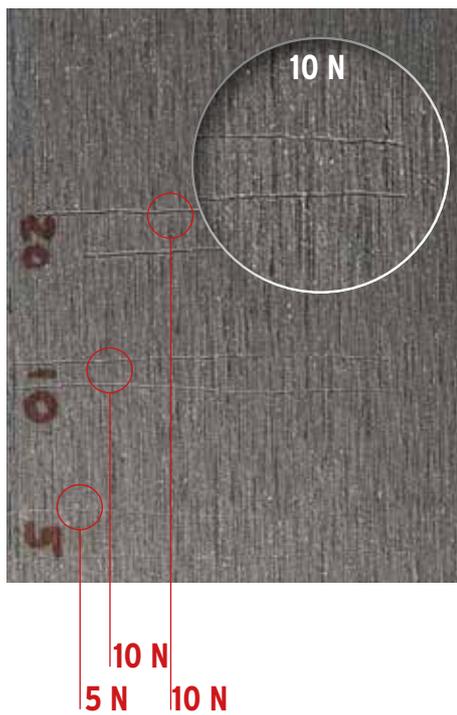
of the surface



Various WPC materials

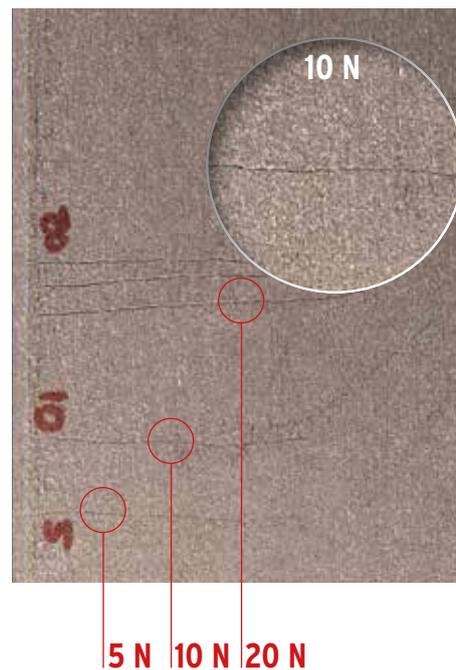
WPC Hagebau

Deep scratches/grooves



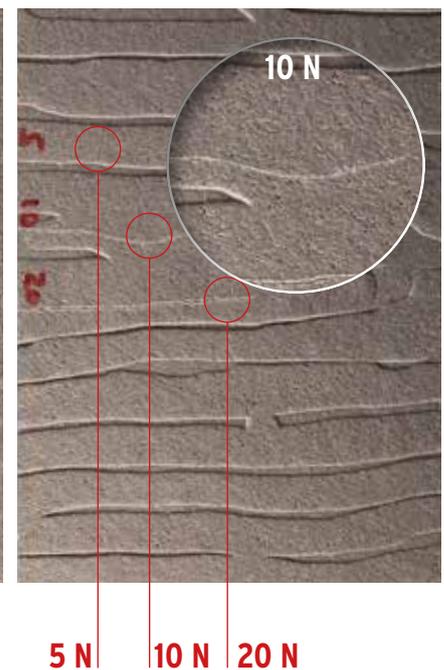
Megawood lava brown

Deep scratches/grooves



WPC Terracon

Deep scratches/grooves



The following generally applies:

The material hardness determines how deep the scratch is for each of the same applied forces.

Wood

Harder wood experiences less deep scratches than does soft wood. When the test rod penetrates too deeply into the wood fibres, they are torn in places, and whole sections chip off.

WPC

Because WPC is one of the materials which are not too hard, the test rod penetrates deeply. That lack of a fibre structure prevents the chipping described for the wood. WPC Materials are usually coloured; in other words, although the surface is damaged, there is no visible difference in colour.

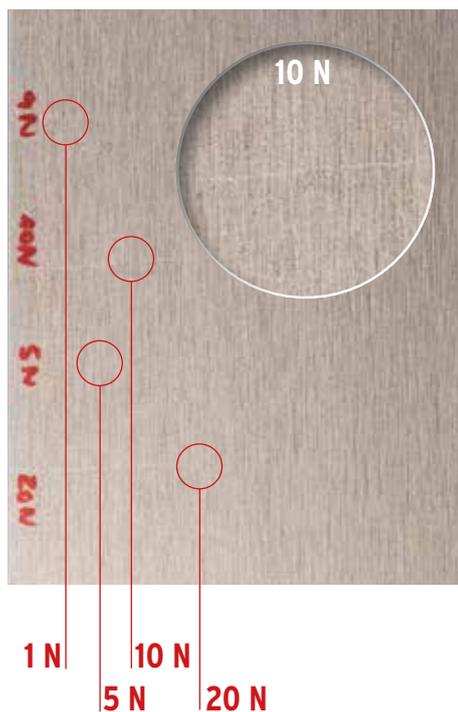
Mechanical requirements of the surface



Resysta FVG glaze

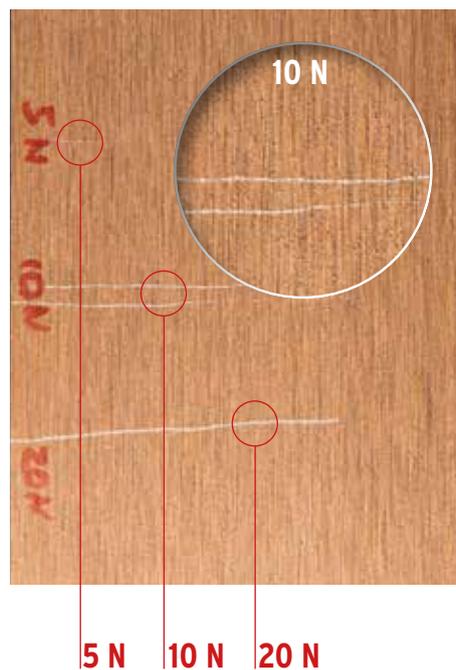
Resysta untreated or FVG C23

Bright colour barely visible slight grooves,



Resysta FVG C51 only dark glaze

Darker shade light discolouration



Resysta FVG glaze

These glazes are merely extremely UV-resistant pigments that give Resysta the incomparable appearance. However, the colour glaze itself does not offer any protection from mechanical stress. The measuring stick penetrates the layer, which is hardly noticeable in bright colours because the underlying natural colour material is very similar to the shade of the glaze.

For dark colours, a contrast between the discolouration and the light background is naturally produced by the removal of the layer of paint.

Resysta is only resistant to mechanical stress via

Resysta 2K lacquer

Manually applied **standard 2K lacquer RFS10** forms a protective layer which is comparable to the sealing of parquet floors. It is much more resistant, though. The same applies in this case as above, though: High stress causes damage to the layer, which is barely noticeable with light shades but visible with dark shades. Greater layer thicknesses (2-coat application) impede the penetration of the layer.

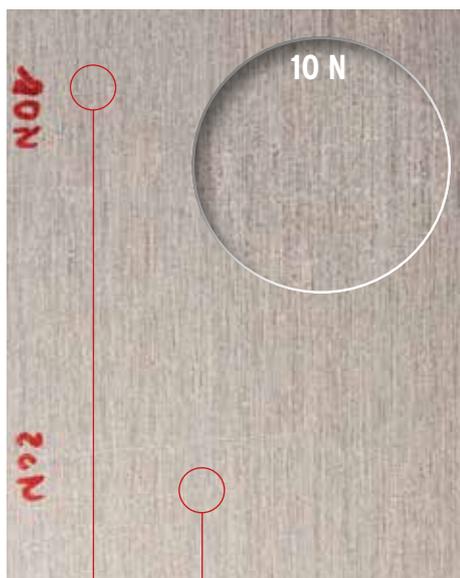
Resysta 2K UV lacquer

Forms an even more resistant layer, which is only penetrated at a maximum load of 20N. In the case of greater thickness, this positive effect is enhanced even further.

Mechanical requirements of the surface

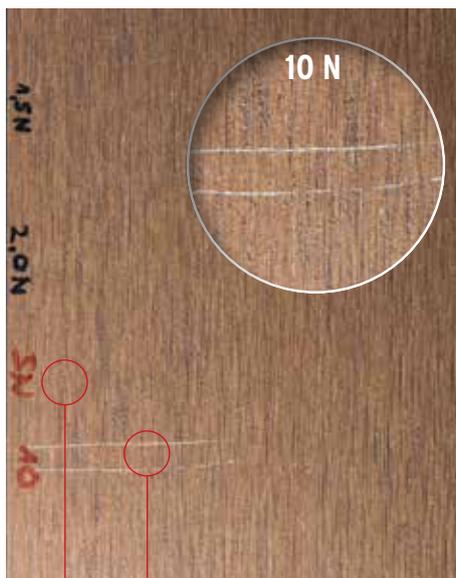
Resysta FVG lacquer plus 2K lacquer (standard RFS10)

Resysta FVG C23 plus RFS10
Bright colour barely visible slight
grooves, even at 20N



10 N 20 N

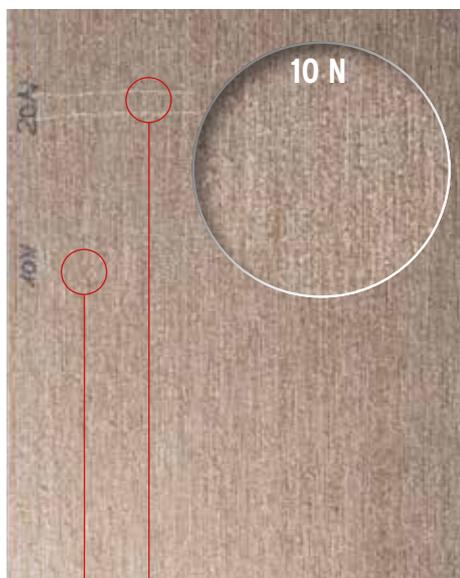
Resysta C51 plus RFS10
Dark colour with colour change
visible starting at 10N



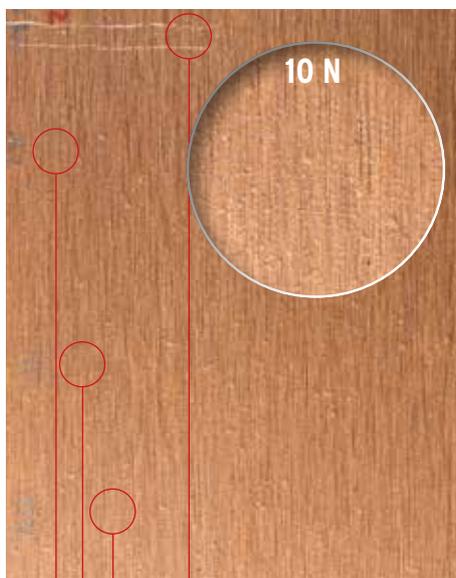
5 N 10 N

**Resysta FVG C23 plus 2K UV
with structure**

Only visible starting at 20N/with greater film thicknesses, the lacquer layer is not destroyed



10 N 20 N



2 N 5 N 10 N 20 N

Mechanical requirements of the surface



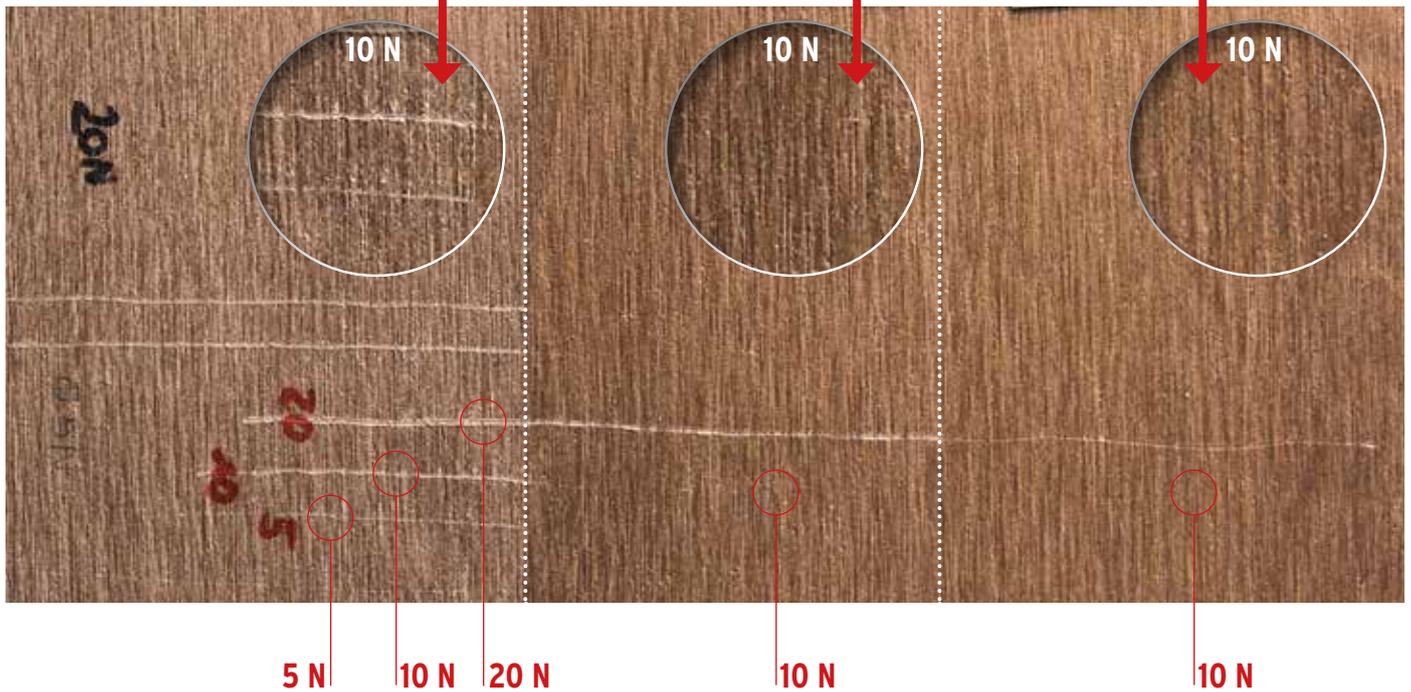
Application quantity

Example Resysta 2K UV lacquer

Without lacquer
Digital printing

Dry film
ca. 35 μ

Dry film
ca. 70 μ



Resysta 2K UV lacquer

In this figure, it is clearly visible how a repeated application of 2K UV lacquer maximises the resistance of Resysta surfaces. Even with a single application, the layer is only penetrated by the test rod under a maximum load (20 N).

With layers of greater thicknesses (in the case of UV lacquer, heavier application of the material), a scratch appears in the material at this maximum load, but the layer is barely impacted beyond that.

Mechanical requirements of the surface



Summary

- In the test, results up to destruction have been tested.
 - 20N corresponds to approximately 1000 kg on an area of a 1 cent coin!
 - Surfaces can become scratched due to mechanical action.
 - Soft surfaces give way (deep scratch).
 - Hard surfaces are more resistant.
 - Optically, the colour change is crucial.
 - Scratches are deeper in the case of a strong colour contrast between the under-ground and surface paint.
 - Greater application quantities of the paint layer reduce the susceptibility to scratches.
- Resysta paints are state of the art, of the highest range, and surpass quality parquet surfaces.**
- Due to the variety of possibilities offered for the surface coating, with Resysta, the optimal solution is available for every application.**

General information

User instructions

Sealers are subject to wear and tear. The individual service life depends on the layer thickness and the degree of stress. Abrasive stresses may scratch the surface. A sophisticated appearance of the coating surface requires regular cleaning and maintenance.

We therefore recommend that surfaces be treated in advance with a pigmented Resysta lacquer FVG. Darker colours provide greater UV protection than do lighter colours. Surfaces under great mechanical stress can be protected longer through repeated application of Resysta 2-component protective lacquer.

Mechanical requirements of the surface

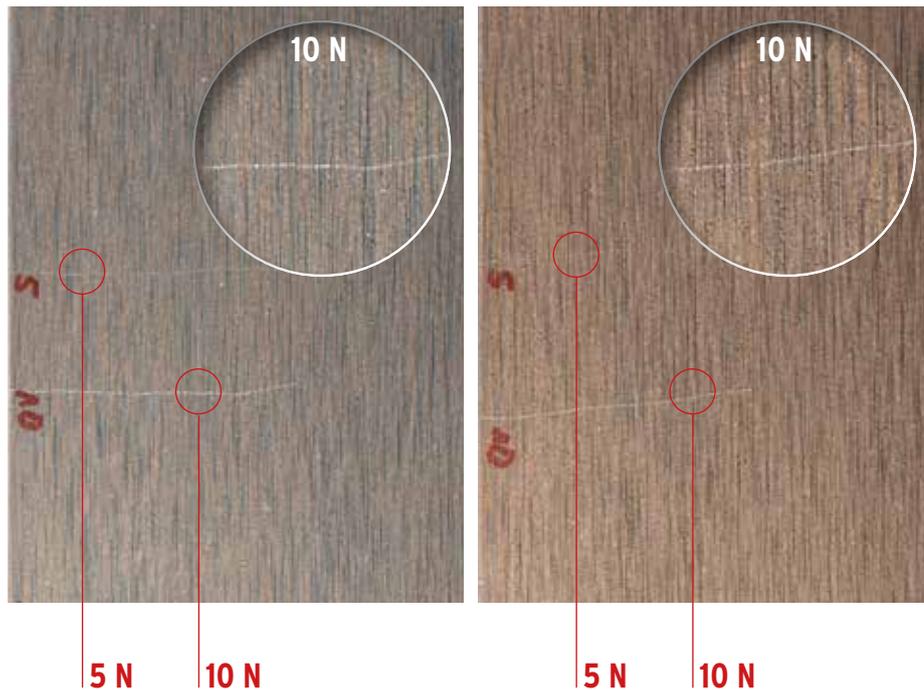


Resysta oiled

Resysta RTO stone grey

Slight change by colour abrasion, slight grooves

Resysta RTO dark oak



Resysta RTO

For mechanically stressed Resysta surfaces, Resysta Top Oil is a good alternative to lacquer. RTO is comparable to FVG lacquers in terms of layer thickness. Likewise, RTO has no mechanical protection, but it offers the distinct advantage that resultant scratches can be handled easily and at any time.

Resysta®

www.resysta.de