Scratch-Resistant Clear Anti-Fingerprint Coating

Description

TPD-315 is a one-component solution forming highly transparent and clear, thin coating over a glass substrate. Based on nanotechnology, the optimized composition of the organic-inorganic matrix provides easy to clean properties with excellent scratch resistance. TPD-315 is compatible to be used in various application processes. During the fast drying and heat-curing process, the surface layer arranges quickly to improve coatings cleanability, reducing the formation of stains, scratches, and fingerprints. TPD coatings are highly durable to chemical and environmental exposure, including high humidity, salt corrosion, UV-light, and temperature changes, without degradation of performance.

Thin TPD coatings enhance clarity of the original glass due to their tuned refractive indexes. Optitune’s patented monophasic siloxane nanomaterials result in a matrix, where the chemical functionality is controlled on molecular level yielding a homogeneous and durable coatings structure.

Applications

- Handheld Objects
- Display Devices
- Glass and Bottles

Highlights of TPD-315

- Better visual outlook of bright and clear objects
- Very good anti-fingerprint invisibility and smudge removability properties
- Extremely high scratch resistance and environmental durable, >8H Hardness on glass
- Low temperature curable coating that can be applied by spraying or spinning
- Various substrate quality from many glass types to specific steel parts

Technical Background

The TPD coatings have benefit of eliminating the cosmetic distraction of fingerprints and other contamination from skin contact.

How to Apply

Apply the solution by spraying or spinning process. The viscosity of the solution can be adjusted to fulfill the ready-to-spray conditions of the automated industrial coating line. One coating layer is typically enough but in the case of multiple pass operations, wet-to-wet layering can be performed. TPD-315 is also available in formulations designed for other coating processes. Before applying, filtering is recommended. Both IR and oven heating are suitable for curing, and to optimize drying and tempering parameters, a test matrix of heat-treatment variables is recommended due to furnace differences.
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Key Properties of Coating

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-Cut Adhesion</td>
<td>Excellent, 5B, ASTM D3359-09, Cross-Hatch tester</td>
</tr>
<tr>
<td>Pencil Hardness</td>
<td>Excellent, &gt;8H, ASTM D3363-00, Elcometer tester and leads</td>
</tr>
<tr>
<td>Luminous Transmittance, λ 360-740nm</td>
<td>T% &gt; +14 % per side, EN410/ISO 9050, Cary 5000 normal incident</td>
</tr>
<tr>
<td>Color Coordinates</td>
<td>L* 97.0, a* 0.1, b* 0.3, CIE1976, Cary 5000 normal incident</td>
</tr>
</tbody>
</table>

Storage and handling

Solution should be stored below room temperature (+20°C) in a well-ventilated place. Keep containers tightly closed and protected from sources of heat and light. Shelf life is 6 months from the date of manufacture. For working safety, consult product Material Safety Data Sheet.

Typical Solution Properties

- Appearance: Clear liquid
- Specific gravity, 20°C: 0.8-0.9 kg/l
- Viscosity, Rolling-Ball: 4-5 mPas
- Diluents: Alcohols, Glycol ethers
- Molecular weight: Mw >2000 g/mol
- Fluorine free

The information given is based on our best knowledge at the date of issue, but carries no guarantee or acceptance of responsibility. For further data on products toxicological, ecological and safety aspects, please consult the MSDS. It is the responsibility of the user of the product to ensure to satisfaction that the product is suitable for the intended purpose and methods of use. We do not accept responsibility for any harm caused by the use of this information.

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