

TPD400

Scratch-Resistant, Clear, Easy-to-Clean Coating



Description

TPD400 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. TPD400 is compatible with various application processes. TPD400 coating provides excellent cleanability, reducing the formation of stains, scratches, and fingerprints. Coating is highly durable to chemical and environmental exposure, including high humidity, salt corrosion, UV-light, and temperature changes, without degradation of performance.

Main applications

- Construction glass
- Display Glass
- Household/commercial specialty glass

Highlights

- Very high clarity and transparency
- Very good easy-to-clean properties and smudge removability, very smooth finger sliding properties
- Extremely high abrasion resistance and environmental durability
- >9H Hardness
- Can be combined with an AR coating to further improve optics

Technical Background

The TPD coatings have benefit of eliminating the cosmetic distraction of fingerprints and other contamination from skin contact. Thin coatings enhance clarity and transparency 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 coating structure.

How to Apply

Typical application process for TPD is spray coating followed by thermal curing. The viscosity of the solution can be adjusted to fulfill the ready-to-spray conditions of the automated industrial coating line. TPD is also available in formulations designed for other coating processes such as slot, dip and roller coating techniques. Before applying, filtering is recommended. Both IR and convection oven heating are suitable for thermal curing.

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| Item | Result | Test method / Standards |
|---------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Pencil hardness | >9H | 750 gram weight ASTMD3363; Elcometer tester Mitsubishi pencils |
| Water contact angle | 116° | Static water contact angle with Biolin Scientific Attension Theta |
| Abrasion resistance | Initial water contact angle 116° Contact angle after 5000 abrasion cycles >110° | Weight load: 1000 g Contact size: 10 mm x 10 mm Contact material: 0000# steel wool Stroke length: 2 inches 60 cycles / minute |
| Adhesion | 5B | ASTM D3359-D9; Elcometer Cross-hatch tester and Elcometer tape test |
| Transmission | +1.2% transmission gain | Spectrophotometer |

Solution properties, 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.

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.