

Anti-Reflective Coating for Photovoltaic Glass



Description

ARX-423 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 anti-reflective properties with high hardness. ARX-423 is compatible to be used in various heat-strengthening and glass tempering processes. The ARX-423 product is designed especially for roller coating liquid-phase process requiring fast drying capability.

Applications

- Tempered Glass
- Photovoltaic Solar Glass
- Glass Sheets and Modules
- Fast Dry Roller Coating Process

Highlights of ARX-423

- Increases transmission by up to 3%, which means 3-4 % higher power output per module
- Temperable coating on soda-lime and low-iron glasses
- Roller coating processing, ARX-423 is especially designed for faster drying process (non-heated lines)
- High scratch resistance and environmental durable, >5H hardness
- Increased easy to clean qualities ensures no drop off in performance of the module due to dirt

Technical Background

With the low refractive index of ARX-423, the efficiency of photovoltaic modules can be improved with peak transmission increasing up to 99% for double-side coating.

Optitune's patented monophasic siloxane nanomaterials result in a matrix, where the pore distribution and pore size are controlled on a molecular level yielding a homogeneous coated structure.

How to Apply

Apply the solution as a single layer coating by roller coating process. The viscosity of the solution is adjusted to fulfill the roller coating conditions of the automated industrial coating line. Either pre-heated or non-heated coating lines can be applied, as well as TPU or rubber coated rolls can be used. Before applying, filtering is recommended. ARX-423 is also available in formulations designed for other coating processes and for various glass types. By altering the process parameters, the transmission peak maximum can be further adjusted to meet the customer needs. Tempering process is used for curing, but to optimize drying and tempering parameters, a test matrix of heat-treatment variables is recommended due to furnace differences.

For product sales, please contact

Asia Edward Huang
edward.huang@optitune.com, +86 159 9627 9587

EMEA / Americas Ari Kärkkäinen
ari.karkkainen@optitune.com, +358 40 5172 876

Optitune Oy
Kaitoväylä 1 F 2
90590 Oulu, Finland
<http://www.optitune.com>

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Key Properties of Coating		
Cross-Cut Adhesion	Excellent, 5B	ASTM D3359-09, Cross-Hatch tester
Pencil Hardness	Excellent, >5H	ASTM D3363-00, Elcometer tester and leads
Transmittance, λ 380-780nm	T% > +2.6 % per side	ASTM D1003, Cary 5000 normal incident
Transmittance, λ 380-1100nm	T% > +2.5 % per side	ASTM D1003, Cary 5000 normal incident

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: M_w >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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