

TECHNICAL SPECIFICATION FOR SOLAR GLASS

Pages 1/3

| Properties | Patterned | | | |
|---|--|------------------|-----------|-------|
| Base glass material | | | | |
| Glass properties | | | | |
| Maximum iron content | $\leq 0.012\% \text{ Fe}_2\text{O}_3$ | | | |
| Glass thicknesses/tolerance | $3.2 \pm 0.2\text{mm}; 4.0 \pm 0.2\text{mm}$ | | | |
| Solar energy transmittance T_E in % (acc. ISO 9050:2003 and DIN 67507/6.3, factors axx. ISO 9845/1,300-2500nm,AM 1.5) | $> 93.5\%$ | | | |
| Surface condition (Surface Roughness Tester Mitutoyo SJ-201P) | $Ra 0,4-1,7\mu\text{m}$ | | | |
| Glass quality per sheet: Test criteria(EN 572-5:1994/5.1.1.1): Viewing distance 1,5 m vertical to the sheet parallel to a matt gray sheet at a distance of 3 m in diffuse daylight | Unremovable dirt | not permitted | | |
| | Bubbles/Core/Solid inclusions | $< 0,5\text{mm}$ | unlimited | |
| | | 0,5-1,5mm | 6 | |
| | | 1,5-3,0mm | 2 | |
| | | $> 3,0\text{mm}$ | 0 | |
| | Longitudinal Bubbles/Core/Solid inclusions | | | |
| | Length(mm) | < 3 | 3-5 | > 5 |
| | Width $< 1\text{mm}$ | 4 | 1 | 0 |
| | Width 1-1,5mm | 2 | 0 | 0 |
| | Width $> 1,5\text{mm}$ | 0 | 0 | 0 |
| Scratches: | | | | |
| Scratch length(mm) | < 5 | 5-10 | > 10 | |
| Scratch width $\leq 1\text{mm}$ | 4 | 2 | 0 | |
| Scratch length $> 1\text{mm}$ | 0 | 0 | 0 | |
| Dimensional accuracy | | | | |
| Dimensional tolerance | $\pm 1,0\text{mm}$ | | | |
| Angularity | Maximum diagonal difference 3mm | | | |
| Edge processing | At least seamed | | | |
| Shells L×W×D | Maximum permissible $3 \times 1,5 \times 1\text{mm}$ | | | |
| Cut corners | Maximum 3mm | | | |
| General bow | 4mm/m | | | |
| Local bow | 0.5mm/300mm | | | |
| Mechanical Properties | | | | |
| Impact test : 227g steel ball from 1 meter height | Not broken | | | |
| Static test : $300\text{kg/m}^2 \times 1\text{hour}$ | Not broken | | | |
| Minimum values from the particle count: Fully tempered glass: Number of fragments per a test area of 50×50mm | minimum 40, Longest fragment:75mm | | | |
| Heat resistance | Place the glass into the oven of 200 ± 2 for 4 hours, then put it into the ice water mixture, the glass not broken. | | | |

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| Coating Properties | | |
|---|--|---|
| <p>Cosmetics: Test criteria (EN 572-5; 1994 / 5.1.1.1): Viewing distance 1,5 m vertical to the sheet parallel to a matt grey sheet at a distance of 3m in diffuse daylight</p> | Color Variations: the nonuniformity color of whole surface caused by the uneven coating liquid. | |
| | Distance from edge \leq 12mm | allowed |
| | Distance from edge $>$ 12mm | not allowed |
| | Color Spot: the nonuniformity color of local (partial) surface caused by the uneven coating liquid. | |
| | Spot Diameter \leq 10mm | 5/sqm |
| | Spot Diameter $>$ 10mm | 0 |
| | Stain: caused by the excessive coating liquid along four edges. | |
| | Distance from edge \leq 10mm | allowed |
| | Distance from edge $>$ 10mm | not allowed |
| | Coat Scratch: caused by transfer of glass during process. | |
| | $W \leq 0.3\text{mm}$, $L \leq 60\text{mm}$ | 4/sqm, with an interval of not less than 100mm |
| | $W > 0.3\text{mm}$, $L > 60\text{mm}$ | not allowed |
| | Visible Inclusion: caused by such coating liquid polluted by foreign substance. | |
| | Diameter \leq 1.2mm | no cluster (less than 20 within an area of Dia.100mm) |
| | Diameter $>$ 1.2mm | not allowed |
| Coating Mechanical Properties | Pencil Hardness : according to ASTM D3363, test the pencil hardness with pencil hardness tester. | $\geq 3\text{H}$ |
| | Wash resistance test per JC/T2170-2013, 400 cycles. | transmission degradation after test $< 0.7\%$ |
| | Adhesion test according to ISO2409, use checkerboard testing method. | ISO class ≤ 0 |

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|---|---|---|
| Alkalinity and Acidity Resistance Testing | SO ₂ test: 20 cycles of 24 hours in 0.67 vol% of SO ₂ per DIN 50018 | No unremovable white spot, transmission degradation after test < 1.0% |
| | Salt spray test : according to DIN 50021, salt spray (5% NaCl in H ₂ O at 35 °C) for 96 hours | No unremovable white spot, transmission degradation after test < 1.0% |
| Accelerated Testing | Damp heat test: 1,000 hours at 85 °C and 85% relative humidity per IEC 61215 | No unremovable white spot, transmission degradation after test < 1.0% |
| | Thermal cycling test: according to IEC 61215, 200 cycles from -40°C±2 to +85°C±2, maintain at least 10 minutes at each extreme temperature. | No unremovable white spot, transmission degradation after test < 1.0% |
| | Damp freeze test: according to IEC61215, 10 cycles from -40°C±2 (maintain 4 hours) to +85°C±2 (maintain 20 hours). | No unremovable white spot, transmission degradation after test < 1.0% |
| | UV aging test per JC/T2170-2013 | No unremovable white spot, transmission degradation after test < 1.0% |