

IKATES, s.r.o.
Laboratory for glass and building products testing



Tolstého 186, Řetenice, 415 03 Teplice, Czech Republic

tel.: +420 417 503 093 / +420 417 502 825

e-mail: ikates@ikates.cz, www.ikates.cz



Testing laboratory No.1139 accredited by Czech Accreditation Institute, o.p.s.

accredited to ČSN EN ISO/IEC 17025:2018

TEST REPORT

No. : 99 / 2020

Test item : **Laminated glass - initial type tests according to ČSN EN14449**
- humidity test according to ČSN EN ISO 12543-4
- high temperature tests according to ČSN EN ISO 12543-4
- radiation test according to ČSN EN ISO 12543-4

Client (address): **TEKNOLOJIK CAM SAN VE TIC AŞ**
Merkez Mah 216.Sok.No.1
Gümüşova / DÜZCE / TURKEY

Producer (address): **TEKNOLOJIK CAM SAN VE TIC AŞ**
Merkez Mah 216.Sok.No.1
Gümüşova / DÜZCE / TURKEY

Place of test performance : **IKATES, s.r.o., Teplice**

Date of sample receiving : **2020-03-26**

Date of test performance : **2020-04-08 to 2020-07-31**

Date of issue : **2020-08-18**

Number of pages : **3**

Page No. : **1**

Manager of testing laboratory : **Jiří Stránský**



Results and/or information out of accreditation range and subcontracts are in the test report identified. Copying and translating, using of report for other purposes (advertisement, extracts from the report) only with consent of the laboratory. Without consent of the laboratory, it is possible to reproduce the report whole only.

| | |
|------------------------|----------------------------|
| No. : 99 / 2020 | Number of pages : 3 |
| | Page No. : 2 |

Normative foundations :

ČSN EN ISO 12543-4 (2012): Glass in building – Laminated glass and laminated safety glass – Part 4 : Test methods for durability

ČSN EN 14449 (2006): Glass in building – Laminated glass and laminated safety glass – Evaluation of conformity/Product standard

Sampling :

Following test specimens of laminated glass were used for the tests :

6 pcs. 100 x 300 mm 6 mm clear float glass + 0,76 mm + 6 mm clear float glass

6 pcs. 100 x 300 mm 6 mm clear float glass + 1,14 mm + 6 mm clear float glass

6 pcs. 100 x 300 mm 6 mm clear float glass + 1,52 mm + 6 mm clear float glass

3 pcs. 300 x 300 mm 6 mm clear float glass + 1,52 mm + 6 mm clear float glass

Note: film type - PVB

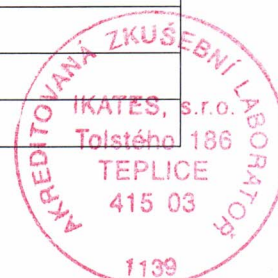
Metrological provision of tests :

Calibrated measuring gauges of testing laboratory were used during testing. Humidity test and high temperature test were carried out in climate chamber CTS with metrological traceability. For measuring and controlling of temperature was used calibrated thermometer. The radiation test was carried out using of testing equipment – radiation wall with Ultravitalux lamps. The light transmittance of samples before and after the test was measured using of spectrometer Shimadzu UV-3600 with metrological traceability. Irradiance was measured with pyranometer Kipp & Zonen CM-6B with metrological traceability, the temperature using of calibrated thermocouple.

Test results :

1. Humidity test (ČSN EN ISO 12543-4, art.6.3.1 – with condensation)

| Sample | state after the test |
|--------|------------------------------|
| 66.2 | no changes in evaluated area |
| 66.3 | no changes in evaluated area |
| 66.4 | no changes in evaluated area |



| | |
|------------------------|----------------------------|
| No. : 99 / 2020 | Number of pages : 3 |
| | Page No. : 3 |

2. High temperature test (ČSN EN ISO 12543-4, art.5.3.2 – procedure A)

| Sample | state after the test |
|--------|------------------------------|
| 66.2 | no changes in evaluated area |
| 66.3 | no changes in evaluated area |
| 66.4 | no changes in evaluated area |

3. Radiation test (ČSN EN ISO 12543-4; 7.3.1)

Duration: 2000 hours; sources: 16 pcs. of OSRAM Ultravitalux 300 W

None of the tested specimens shows visually observable changes in the evaluated area.

| Sample | Light transmittance before and after the test | | Rel. difference (%) |
|--------|---|-----------------|------------------------|
| | τ_{V1} (1) | τ_{V2} (1) | |
| 66.4 | 0,857 | 0,853 | -0,5 |
| 66.4 | 0,853 | 0,850 | -0,4 |
| 66.4 | 0,856 | 0,852 | -0,5 |

Note: According to ČSN EN 12543-2, art. 4.3, the allowable difference is max. ± 3 % rel.

Statement : Test results, given in this report, apply only to the tested items as received. Test report does not replace other documents, e.g. administrative characters, issued by other bodies, according to particular regulations. The official version is in Czech language.

Distribution list :

2 x TEKNOLOJIK CAM SAN VE TIC AŞ

1 x Laboratory for glass and building products testing IKATES, s.r.o. (archive)

Test results were approved by :

For correctness of the report is responsible :

Michal Hnilčka

===== end of the test report =====

